

## **DOCTORAL THESIS**

### **A comparative multi-country, multi-sector study of online loyalty in e-tailing**

Beg, Sree

*Award date:*  
2019

*Awarding institution:*  
University of Roehampton

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# A comparative multi-country, multi-sector study of online loyalty in e-tailing

by

Sree Beg BA(Hons), MA

A thesis submitted in partial fulfilment of the requirements for the degree of PhD

Roehampton Business School

University of Roehampton

2019

## **Abstract**

As e-tailers increasingly pursue international expansion strategies in an evolving competitive marketplace, understanding online loyalty formation across countries and sectors becomes ever more significant. In contrast to other studies examining online loyalty this study investigates the psychological drivers of online loyalty as opposed to functional ones and focuses on the role of online e-tailer investments (EPRI). Theoretical underpinnings of relationship quality and reciprocity are utilised to explain mechanisms of online loyalty formation through relationship development. Previous research has drawn attention to the limited theoretical development of relationship quality and reciprocity alongside a lack of focus on moderators associated with online loyalty formation within an international context. To address these concerns this study empirically investigates online loyalty across China, India, the US and UK in the clothing and electrical products sector and utilises an integrated conceptual model involving moderating effects of consumer cosmopolitanism, product category involvement and national culture. It investigates the contention that e-tailer investments will positively affect the strength of the relationship between e-tailers and customers through the enhancement of relationship quality which in turn will impact online loyalty through a reciprocal mechanism. The findings, based on an online survey of 1010 respondents analysed via Structural Equation Modelling (SEM), support this argument across all four countries and both sectors. Additionally this study provides a ranking for EPRI effects across countries and sectors which previous studies have not offered. Moderating effects are established across the range of datasets suggesting context specific influences which are discussed in more detail.



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## Acknowledgements

I would like to thank my parents for their constant encouragement and dedicate this thesis to my mother whose wisdom, compassion and courage will always be an inspiration.

I would like to express gratitude to my director of studies Professor Mohammed Rafiq whose guidance and support made this thesis possible. I would also like to thank a number of people whose advice shaped this research; Professor Lia Zarantonello, Professor Elaine Harris, Professor Wantao Yu, Dr Kun Jiang and Dr Haytham Siala. I would like to thank the graduate school and the administrative team for keeping this work on track and the University of Roehampton for awarding me a vice-chancellor scholarship allowing me to pursue a PhD. My appreciation also goes to Professor Chanaka Jayawardhena, Professor Annie Chen and Professor Stephen Drinkwater for their insights and advice.

I need to give a special mention to my fellow PhD colleagues who have made this PhD journey enjoyable and memorable and I feel fortunate to have shared the same PhD office with them. A special thanks goes to; Katja Annika Jonsas, Mirjana Grkovska and Gloria Appiah and the copious amounts of chocolate consumed in the name of research.

Finally, I would like to thank my wonderful family for all their support and patience, which made this PhD possible. I owe a special thanks to my husband who is still my best friend. I am so proud of my daughters Safiya and Zaara whose constant encouragement and sense of humour has allowed me to complete my PhD and for them I would like say

- “Shine like the universe is yours.” *Rumi*



## **Ethical Approval**

The research for this project was submitted for ethics consideration under the reference BUS 16/ 039 in the UR Business School and was approved under the procedures of the University of Roehampton's Ethics Committee on 19.07.17.



## **CHAPTER ONE**

### **1.0 INTRODUCTION**

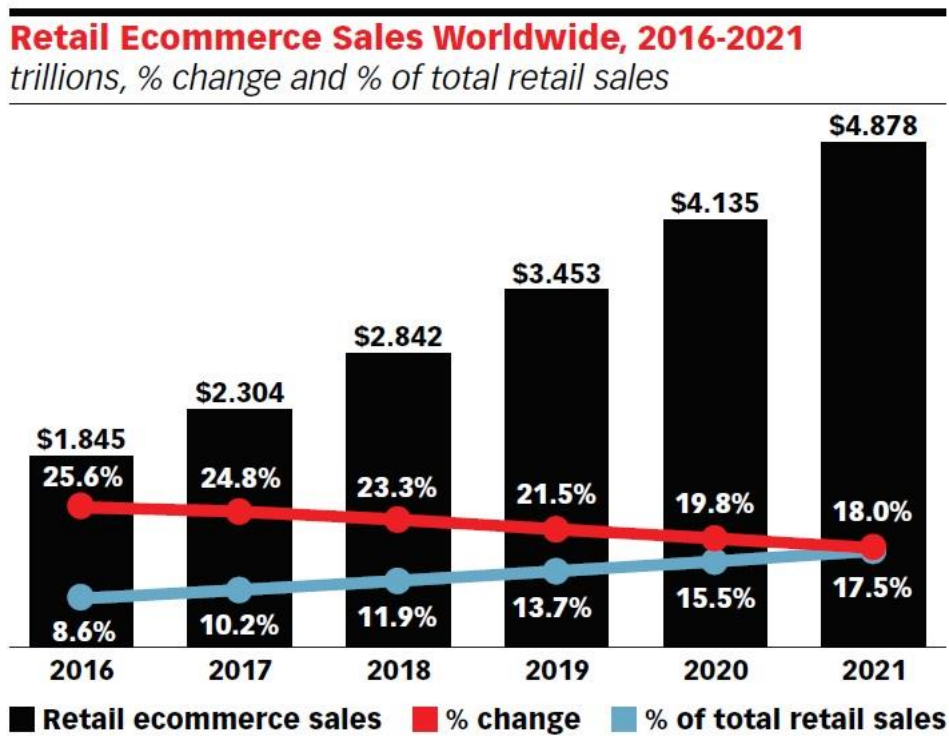
One of the key challenges facing e-tailers this study aims to address, centres on how to retain customers across a range of international markets when competitors are only a click away. This section introduces the research study and the context from which it has been derived. The first section concentrates on the growth of e-tailing in an international context emphasizing the importance of e-tailer and consumer relationships. Following on from this, motivations for the study and the significance of online loyalty are explored. The selection of markets is subsequently examined providing justification for the inclusion of countries (China, India, UK and US) and sectors (clothing and electrical products). The next section discusses gaps in the literature resulting in the main research question and objectives. The final section conveys the contribution of the study and provides an overall structure for the thesis.

### **1.1 Growth of E-tailing**

Retail e-commerce sales worldwide are predicted to increase substantially over the next few years confirming the importance of e-tailing as an economic growth sector. According to eMarketer (2018), worldwide retail e-commerce sales are estimated to reach \$4.878 trillion in 2021 accounting for 17.5% of total retail sales. This signifies an increase of \$1.425 trillion since 2019. Although the percentage change of retail e-commerce sales rate is expected to slow down as can be seen in Figure 1.1 (from 25.6% in 2016 to 18.0% in 2021), overall predicted sales remain substantial increasing from \$1,845 trillion in 2016 to \$4,878 trillion in 2021. Furthermore, retail e-commerce sales as a percentage of total retail sales are estimated to significantly increase from 8.6% in 2016 to 17.5% in 2021,

reflecting the continuing shift of consumer retail e-commerce adoption. The strongest growth in the retailing sector is indicated as emerging from digital channels highlighting the importance of e-tailing (eMarketer, 2019).

**Figure 1.1 Retail Ecommerce Sales Worldwide, 2016-2021**



Source: eMarketer (2018)

The growth of e-tailing has been driven globally by key individual retail e-commerce markets signalling an evolving international retailing landscape (eMarketer, 2018). A significant proportion of this growth has been driven by retail e-commerce sales in China, India and the US, clearly demonstrating the importance of these markets within a global context (eMarketer, 2018). According to figures obtained from eMarketer (2018), the two largest markets in terms of retail e-commerce sales are currently China and the US (See Appendix A for general country information). China has a dominant position, with estimated retail e-commerce sales of \$1,913 billion and is followed by the US with an

estimated \$598 billion of retail e-commerce sales in 2019. The UK is placed third in the global rankings with a market estimation for 2019 standing at \$138 billion. Although a smaller market in comparison to the other countries the UK has a sophisticated e-commerce market with the highest level of predicted sales in the Western Europe cluster (eMarketer, 2018). India is ranked as the ninth largest retail e-commerce market with an estimated total of retail sales of £34 billion in 2019. As a nascent e-commerce market India demonstrates a rapidly expanding retail e-commerce sector with predicted growth rates of 24.8% in 2019. China additionally shows strong growth rates of 29.1% in 2019 indicating the significant influence of these two markets (eMarketer, 2018). In comparison, estimated growth rates in the UK (9.4%) and the US (14.8%) for 2019 are far lower reflecting the growing maturity of these markets. Digital buyer penetration rates as a percentage of the population are estimated as; 79.4% (UK), 70.3% (US), 48.0% (China) and 27.8% (India) in 2019 (eMarketer, 2018). The UK and US both have higher digital buyer penetration rates reflecting well established and mature retail e-commerce markets (KPMG, 2017). China and India have far lower digital buyer penetration rates indicating a greater potential scope for future growth. While Western based retail e-commerce markets (US and UK) have traditionally been prominent in the global retailing landscape, Eastern based retail e-commerce markets (China, India) are proving increasingly significant given their stronger growth rates (KPMG, 2017). The significance of China and India's retail e-commerce markets has proved attractive to foreign e-tailing investors, given their large population sizes and increasing number of digital buyers (eMarketer, 2017). International e-tailing has advanced and become more prevalent through expansion strategies into attractive geographic markets. Internationalisation has partly been fuelled by dominant e-tailers entering into new geographic markets either through acquisition of or in partnerships with domestic e-

commerce retailers. For example Walmart (the US grocery chain) has recently acquired a majority stake in Indian owned Flipkart for \$16 billion highlighting one of the largest e-commerce acquisitions (Roy, 2018). Amazon is one of the earliest US e-tailers to enter into India with Amazon.in established in 2013 (BBC News, 2013). Investment of \$445 million has flowed from Chinese firms Softbank and Alibaba into Indian owned e-tailer Paytm Mall representing another high profile partnership (Reuters, 2018). The large scale acquisitions and partnerships signify the competitive nature of the international retailing e-commerce landscape. Access to global customers is more widespread through common methods of direct international delivery and internationally based partner e-tailers (Grant & Bakhru, 2004; eMarketer 2017). For example, UK brands Next and Marks and Spencer are available on Indian owned site Jabong.com. Luxury brands including Burberry, Valentino and Hugo Boss are available on China's Alibaba owned Tmall site. Additionally many e-tailers ship directly to customers internationally from their base location.

While the range of international expansion strategies has increased, consumers have the additional flexibility of buying directly from overseas e-tailers engaging in cross-border shopping. Cross-border shopping refers to consumers purchasing products with foreign e-tailers that are based outside of their normal shopping zone, as opposed to foreign e-tailers based within domestic shopping zones (Cheng et al., 2008; Wagner et al., 2016). The concept of cross-border shopping is increasing in popularity as consumers seek cheaper and more varied alternatives across international markets (KPMG, 2017). In a survey conducted by PayPal (2018) the percentage of consumers engaging in online cross-border shopping (alongside domestic e-commerce buying) is significant with estimated values of: China (35%), UK (34%), US (27%) and India (27%). Moreover

cross-border shopping globally is estimated to increase annually by 25% from 2015 to 2020 (DHL, 2016), additionally confirming the importance of consumers in a global context. These figures suggest international expansion is not only driven by e-tailers but increasingly by consumers through cross-border shopping. Competition in the e-tailing environment has intensified as retailers enter and expand into new international markets highlighting a need to fully understand drivers and motivations of digital buyers countries (KPMG, 2017).

## **1.2 Online Loyalty and Motivation for Study.**

A number of studies highlight the increasing importance of online loyalty in e-tailing and demonstrate a clear need to further understand the drivers and determinants of online loyalty formation in a global context (Shankar et al., 2003; Gefen & Heart, 2006; Jin et al., 2008; Toufaily et al., 2013; Cyr, 2013; Mazaheri et al., 2014; Gracia et al., 2015; Frassetto et al., 2017; Peña-García et al., 2018). Some studies even argue online loyalty is the single most important factor affecting online retailers (Chiou, 2004; Liang et al., 2008). Given the importance of online loyalty as a topic to both academics and retailers, this study aims to add further to the literature surrounding online loyalty formation in an international retailing context. Studies have shown a close correlation between customer retention and profitability whereby a 5% increase in customer retention can lead to a 25% - 95% increase in profitability, emphasizing the importance of online loyalty (Reichheld & Sasser Jr., 1990). From an e-tailer perspective, the financial implications are clear with supporting empirical evidence to show a positive relationship between loyalty and profitability (Reichheld & Schefter, 2000; Bhattacharjee, 2001). This relationship is further supported by studies that highlight the importance of focusing efforts on improving repeat purchases and in turn customer loyalty, especially when customer acquisition costs can far exceed customer retention costs (Barsh et al., 2000).

There is evidence to support that developing loyalty in an online setting can be more difficult and more valuable than in an offline setting (Goode & Harris, 2007). That said, a number of studies argue there is a clear difference between the factors that affect online and offline loyalty and each should be treated differently (Shankar et al., 2003; Melis et al., 2015; Londoño et al., 2016; Tsiotsou et al., 2016; Kozlenkova et al., 2017). Offline loyalty generally refers to loyalty with retailers in a physical setting where loyalty is affected by cues that are more physical. Initiatives such as improving the physical appearance, updating store fronts, and training service personnel have been shown to positively affect loyalty (Sirohi et al., 1998; Wind & Rangaswamy, 2001). However, given the lack of physical cues, consumers must rely on virtual cues when making judgements regarding e-retailers. These could include; website functionality, customer service, brand reputation, search and navigation, design, security, payment options, assortment of products, reviews, and online discussions (Srinivasan et al., 2002; Burke, 2002; Bart et al., 2005; Loureiro & Roschk, 2014; Melis et al., 2015; Saini & Lynch, 2016; Kozlenkova et al., 2017). Given the differences between online and offline loyalty, existing studies contend there is an essential requirement to further understand online loyalty as a separate construct to offline loyalty (Parasuraman et al., 2005; Loureiro & Roschk, 2014; Tsiotsou et al., 2016).

Examining online loyalty from a psychological perspective could prove advantageous to e-tailers. The vast majority of studies examining online loyalty focus on technical and functional aspects related to the website (Figallo, 1998; Constantinides, 2004; Lawson-Body & Limayem, 2004; Kabadayi & Gupta, 2005; Flavin & Guinalu, 2006; Mithas et al., 2006; Ahn et al., 2007; Cyr, 2008; Casaló et al., 2008a; Chang & Chen, 2009; Ganguly et al., 2010; Cyr, 2013). In a departure from this direction, this study examines online

loyalty from a psychological perspective and investigates relationship-oriented factors towards online loyalty, an area currently under-researched. Studies have argued that investigating these social interactions (from a psychological perspective) could be more valuable than technical interactions (from a functional perspective) and could provide potential sources of competitive advantage (Toufaily et al., 2013). Adopting this approach could provide significant insight in terms of the psychological relationships between consumers and e-tailers in online loyalty formation.

A growing body of literature has focused on the concept of relationship marketing (RM) and relationship quality (RQ) as a major antecedent of loyalty and in turn online loyalty, which demonstrates a greater understanding of psychological relationships (Palmatier et al., 2006; Walsh et al., 2010; Vesel & Zabkar, 2010; Gummesson, 2011; Verma et al., 2016; Steinhoff et al., 2018). Relationship marketing emphasises the formation of long term relationships with consumers to develop loyalty whereas relationship quality reflects the strength and quality of the relationship (Crosby et al., 1990; Sheth, 2002; Vesel & Zabkar, 2010; Gummesson, 2011). If retailers are able to develop strong levels of relationship quality the more likely consumers are to be loyal (Crosby et al., 1990; Naudé & Buttle, 2000; Palmatier et al., 2006; Moliner et al., 2007; Vesel & Zabkar, 2010; Liu et al., 2011; Kozlenkova et al., 2017). Studies examining RQ in a B2C context are still limited with the vast majority of studies positioned in business-to-business (B2B) markets examining supplier relationships (Dwyer et al., 1987; Crosby et al., 1990; Kumar et al., 1995; Harker & Egan, 2006). Furthermore, the number of studies examining RQ in an international context are even fewer with a limited number of multi-country studies countries (Samaha et al., 2014).

The role of retailer investments in consumer relationships demonstrates a psychological focus and could provide valuable insight into online loyalty formation. The focus of this study centres around ‘online perceived relationship investment’ (EPRI) and is known as ‘retailer efforts or investments’ perceived to be made by consumers. This is underpinned by the theory of reciprocity which suggests consumers will reciprocate the investment perceived to be made with higher levels of loyalty (Gouldner, 1960; Bagozzi, 1995; Kang & Ridgway, 1996; Fournier & Yao, 1997; De Wulf et al., 2001; Wu et al., 2008; Palmatier et al., 2009; Huang, 2015). In essence, if consumers perceive that retailers have made an investment in the relationship and this can be demonstrated in a variety of ways (e.g. better customer service, more online personalisation etc.), then consumers will feel more valued in the relationship and so more likely to reciprocate, which could manifest itself through higher levels of loyalty towards that retailer (Sheth & Parvatiyar, 1995a; De Wulf et al., 2001; Rafiq et al., 2013; Swoboda et al., 2016; Kozlenkova et al., 2017).

The role of reciprocity is important in this context as it provides a mechanism to explain relationship development which many loyalty studies do not explicitly do. While RM focuses on long term relationship formation and RQ on the strength of the relationship, reciprocity provides direction on the interaction in relationship development (Bagozzi, 1995; De Wulf et al., 2001; Kozlenkova et al., 2017). Furthermore, studies suggest reciprocal exchanges based on positive actions may result in longer term and stronger relationships (De Wulf et al., 2001; Sin et al., 2005; Swoboda et al., 2016). International studies explicitly involving reciprocity are severely lacking in the literature with only one study identified to the researcher’s knowledge conducted by Hoppner et al. (2015). In a study examining firm relationships, Hoppner et al. (2015) concentrate on the relationship between culture and reciprocity in Japan and the US. While this provides an initial insight



into reciprocity across countries, the study conducted by Hoppner et al. (2015) does not address consumer-firm relationships and is limited to two countries. Given the theoretical significance of reciprocity, the lack of attention and empirical evidence in the literature is surprising and highlights a key area that merits further examination, which this study aims to accomplish.

Previous studies have shown a strong correlation between perceived relationship investment and loyalty (Anderson & Narus, 1990; Ganesan, 1994; De Wulf et al., 2001). However, as these were conducted in an offline setting, questions remain if these interactions hold true in the online environment and to what extent. To the researcher's knowledge, only three other studies have examining perceived relationship investment in an online retail setting (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013). These studies provide a single country, single sector perspective and thus opportunities exist to examine EPRI in a multi-country, multi-sector context through a comparative approach. The need to investigate the emerging construct of EPRI further and under different conditions is therefore apparent. This study further examines the moderating effects of consumer cosmopolitanism, product category involvement, and national culture (individualism/collectivism) on the relationships between online relationship investment and the individual dimensions of relationship quality (online ongoing trust online relationship satisfaction and online affective commitment).

As culture influences consumer attitudes and behaviour, it has a significant connection with online loyalty formation (Jarvenpaa et al., 1999; De Mooij & Hofstede, 2002; Lim et al., 2004; Ribbink et al., 2004; Stafford et al., 2004; Soares et al., 2007; Samaha et al., 2014; Gracia et al., 2015; Samiee et al., 2015). Culture plays an important role in e-tailing as consumers are no longer restricted by geographic and physical boundaries. Given the

additional rise in cross-border shopping, e-tailers are increasingly operating in diverse international markets (KPMG, 2017). While this presents opportunities in terms of a widening global customer base, it presents challenges in terms of understanding consumers from a range of different cultures.

Culture has traditionally been examined at an aggregate level with assumptions of national cultural homogeneity (Hofstede, 2001; De Mooij & Hofstede, 2002; House et al., 2004; Soares et al., 2007; Steenkamp & de Jong, 2010; Schwartz et al., 2012; Minkov & Hofstede, 2012; Samaha et al., 2014). Hofstede's dimensions of culture is one of the most widely used frameworks in international retailing studies (De Mooij & Hofstede, 2002; Kirkman et al., 2006; Samiee et al., 2015; Beugelsdijk et al., 2017). Culture is examined through national and geographic boundaries along six dimensions of cultural characteristics including; uncertainty avoidance, individualism/collectivism, masculinity/femininity, power distance and indulgence (Hofstede, 1983, 2001; Minkov & Hofstede, 2012). Full descriptions are provided in Appendix B. For the purpose of this study, culture is examined through Hofstede's dimensions of individualism and collectivism. This dimension has been selected for two main reasons including classification and popularity. First, dimensions of individualism and collectivism clearly separate countries along East and West divisions. China and India are therefore classified as Eastern societies in a collectivist category and the UK and US as Western societies in an individualist category (Hofstede, 1983, 2001; Ronen & Shenkar, 1985). Second, given its frequent adoption in a number of online loyalty studies and its close relation to psychological factors of trust, satisfaction and commitment, these dimensions are well positioned with regard to this study (Jarvenpaa et al., 1999; Pavlou & Chai, 2002; Gefen

& Heart, 2006; Cyr et al., 2008; Jin et al., 2008; Yoon, 2009; Ganguly et al., 2010; Frasquet et al., 2017).

To provide a further comparative approach countries are examined along more individual consumer based behaviours. Addressing concerns in the literature that culture does not necessarily correspond to national boundaries and individual level criteria should be adopted, countries are additionally examined through consumer cosmopolitanism (Thompson & Tambyah, 1999; Cannon & Yaprak, 2002; Caldwell et al., 2006; Cleveland et al., 2011; Riefler et al., 2012; Zeugner-Roth et al., 2015; Dogan & Yaprak, 2017). This twofold approach of examining countries through both national aggregate level criteria (Hofstede's cultural dimensions) and individual level criteria (consumer cosmopolitanism) provides a unique perspective on international online loyalty formation. While country differences tend to be explored through national geographic boundaries, less is understood on similarities between consumers across countries which this study seeks to address.

A growing number of studies have advocated the use of consumers' degree of cosmopolitan orientation as a method to evaluate consumers rather than on country characteristics. Through globalization, national characteristics diminish and developing alternative measures of consumers internationally needs further investigation (Cannon & Yaprak, 2002; Ghemawat, 2011; Riefler et al., 2012; Cleveland et al., 2014; Zeugner-Roth et al., 2015). The growth of e-commerce and its ability to transcend national boundaries makes it an ideal sector to investigate consumers in more depth and to further understand the notion of 'cosmopolitan orientation' as a method for segmentation. The idea of the cosmopolitan consumer has a number of diverse explanations but for the purpose of this study is defined as 'an open-minded individual whose consumption

orientation transcends any particular culture, locality or community and who appreciates diversity including trying new products and services from a variety of countries' (Riefler & Diamantopoulos, 2009:415). Customer retention is a key challenge facing e-tailers and understanding mechanisms of online loyalty formation can help e-tailers develop more appropriate retention strategies, particularly in an international context and across varying sectors (Gefen, 2002; Srinivasan et al., 2002; Devaraj et al., 2003; Kabadayi & Gupta, 2003; Grewal et al., 2004; Goode & Harris, 2007; Chiu et al., 2009; Kanagal, 2009; Christodoulides & Michaelidou, 2010; Rafiq et al., 2013; Chou & Hsu, 2016; Kozlenkova et al., 2017; Peña-García et al., 2018; Steinhoff et al., 2018). By developing a greater understanding of online loyalty this study argues that e-tailers will be better placed to operate in an increasingly competitive environment. Taking into consideration the growth of international e-tailing and cross-border shopping alongside the importance of online loyalty formation, there is a need to explore how to retain customers through psychological drivers across a range of international markets and sectors. This study seeks to address this gap in the literature and builds on theoretical foundations of RQ and reciprocity, which are currently lacking in the international online loyalty research stream.

### **1.3 Selection of Markets**

This study adopts a multi-country comparative approach examining e-tailing in; China, India, the UK and US. Furthermore, a multi-sector approach is undertaken with clothing and electrical sectors chosen for comparison. Thereby, providing a greater understanding of online loyalty formation across a range of international markets and sectors. See Appendix A for further information on e-tailers by market share by country.

### **1.3.1 China and India**

China and India have been selected given their importance in driving retail e-commerce sales globally. They are both part of the Asia-Pacific cluster of countries which is predicted to be the fastest growing segment globally, primarily due to growth in China and India (eMarketer, 2018). Based on estimations provided by eMarketer (2018), growth in the Asia-Pacific cluster (based on percentage change) is predicted to be 26.3% in 2019, which is substantially higher than growth predictions in the North American cluster (including the US) at 14.8% and 10.0% in the Western Europe cluster (including the UK). Growth has been fuelled by higher mobile commerce sales with the Asia-Pacific region exhibiting one of the highest levels of mobile commerce as a percentage of e-commerce sales. According to eMarketer (2018) mobile commerce sales as a percentage of e-commerce sales for 2017 were estimated as; 81.6% (China), 71.8% (India), 43.3% (UK) and 34.5% (US) and predicted to increase over the next few years. China has a dominant position and is currently the largest retail e-commerce market. Expansion has been rapid coupled with a surging consumer demand from predominantly younger consumers aged less than 35 (Deloitte, 2016). Given the strong mobile penetration rate, e-tailers are advancing more integrative strategies with consumers and mobile technologies including virtual reality (VR), augmented reality (AR), QR codes and showrooming techniques are increasingly being incorporated into retailer strategies (PWC, 2016). Research streams specifically examining O2O (online to offline) are emerging in response to the rise in integrative strategies seen predominantly in Asia-Pacific markets (Zhang, 2014; Yang et al., 2016; Yan & Pei, 2018; Shen et al., 2018).

In contrast, India is a relatively young e-commerce market with huge growth potential. Similarly to China mobile phone penetration is high and demand is fuelled by a younger

target market demographic (EY India, 2016). A study by Goldman Sachs (2016), identified 65% of India's population as 'young' highlighting approximately 440 million as millennials and 390 million as Generation Z (born after 2000). This signifies a valuable younger demographic as potential digital buyers (BCG, 2017). A distinct feature of this market is based on a reluctance to use electronic payments systems and favouring cash on delivery as a preferred method (EY, 2016). Challenges are similar in both countries regarding consistency of service quality coupled with logistics challenges. For example, infrastructure may not be as fully developed compared to the UK and US which may cause challenges with logistics networks (BCG, 2017). Service quality may not be as consistent given the relatively weak regulatory framework provided to consumers shopping online (Paul & Mas, 2016; Jain et al., 2017). Hence, attitudes to returns, exchanges and refunds may vary across e-tailers, affecting attitudes towards online loyalty (Yan & Pei, 2018). While both countries have large and diverse populations, online shopping populations are smaller and can be considered more homogenous.

### **1.3.2 UK and US**

The UK and US markets in comparison are more established and maturer markets. This is highlighted by both the earlier establishment of these markets coupled with a lower digital buyer growth rate. According to eMarketer (2018), digital buyer growth predicted in 2019 (as a % change), is the highest for India (22.1%), followed by China (5.8%) the US (2.2%) and the UK (1.3%). Although values for the US and UK are lower than China and India, the US and UK still maintain significant retail e-commerce markets. Retail e-commerce sales are still relatively low compared to physical retail sales suggesting strong potential for future growth (KPMG, 2017). The selection of these countries facilitates a meaningful comparison between more maturer and less maturer retail e-commerce

markets. Further comparisons can be made based on cultural factors. From a national cultural perspective the UK and US are traditionally considered Western (Anglo) based societies whereas China and India are seen as Eastern (Far East) based societies (Ronen & Shenkar, 1985; Fukuyama, 1995; Hofstede, 2001; House et al., 2004; Soares et al., 2007; Minkov & Hofstede, 2012). Comparisons at this level prove valuable given the assumed variations in attitudes and behaviours associated with Western and Eastern based societies when shopping online (Ronen & Shenkar, 1985; Jin et al., 2008; Christodoulides et al., 2013; Samaha et al., 2014; Shobeiri et al., 2018). Retail e-commerce markets in the UK and US are categorised by developed legal frameworks, which can be viewed as structural safeguards which may affect consumer attitudes towards online loyalty (Miyazaki & Fernandez, 2001; McKnight et al., 2005; Flavin & Guinalu, 2006). The US has traditionally held the dominant position in the global retail e-commerce market and has recently dropped to second place after China. Although the US has a more mature market with a lower growth rate, the retail e-commerce market remains significant globally (eMarketer, 2018, KPMG, 2017). The UK has a smaller retail e-commerce market in comparison but it is well developed and established. While millennials are generally seen as the main segment driving retail e-commerce growth, the UK and US additionally have a significant number of older shoppers (KMPG, 2017).

Further challenges face each of these countries which could potentially affect retail e-commerce growth and development. China exhibits a slowing economy with potential effects from a trade war with the US (Paul & Mas, 2016). The UK faces a number of uncertainties surrounding Brexit which could significantly affect consumer demand and cross-border shopping (Agelovska, 2019). Challenges face India regarding employment of its strikingly growing young population which could impact online shopping alongside

recent legal restrictions placed on global e-tailers (Goldman Sachs, 2016; Ahmed & Phartiyal, 2018). The US economy shows stable growth with consumer disposable income set to increase however, this is offset by a recent increase of consumer distrust towards of e-tailers (KMPG, 2017; GIGI-Ipsos, 2018).

### **1.3.3 Clothing and Electrical sectors**

Sectors of clothing and electrical products were chosen given their popularity as online product categories across all four countries, providing confidence in cross-sector comparisons (A.T. Kearney, 2015; KPMG, 2017).<sup>1</sup> These two sectors further demonstrate diametrically opposing examples of hedonic and utilitarian product sectors (Hirschman & Holbrook, 1982; Babin et al., 1994; Overby & Lee, 2006; Chitturi et al., 2008; Kushwaha & Shankar, 2013; Ghasemaghahi & Hassanein, 2015). Therefore, comparisons based on opposing consumer motivations could be more readily made. While the clothing sector is traditionally viewed as more hedonic, decisions tend to be based on emotional reasoning (Hirschman & Holbrook, 1982; Park & Kim, 2003; Jones & Kim, 2010; Kushwaha & Shankar, 2013). In contrast, electrical products are generally seen as more utilitarian where consumer decisions may be more based on rational and efficiency measures (Babin et al., 1994; Kushwaha & Shankar, 2013; Mallapragada et al., 2016). These two dimensions are applied in this study given their opposing positions alongside product category involvement. Product category involvement further examines consumer

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<sup>1</sup> The 'electrical product sector' is a term used for convenience and includes both electrical and electronic products. Consumers were given suggestions for 'electrical products' including; Audio visual and photographic equipment (TVs, Stereos, photographic equipment, digital cameras, projectors etc.). Computing and telecoms (desktops, laptops, tablets, smartwatches, mobile and home phones etc. ) and personal care appliances (electrical razors, fitness trackers, hairdryers, hair straighteners etc.).



involvement in the product category from an individual perspective (Mittal, 1995).

There is discussion in the literature that levels of involvement will affect loyalty formation (Varki & Wong, 2003; Suh & Youjae, 2006; Dagger & David, 2012; Mallapragada et al., 2016). However, there is scarce research on the moderating effect of product category involvement on relationship quality. Hence, this study employs product category involvement as a moderator (Athanasopoulou, 2009). Given the importance of the clothing and electrical products sector in e-tailing, the effect of product category involvement across countries and sectors is still under-researched and warrants further investigation.

#### **1.4 Gaps in the Current Research**

A wide range of dimensions have been investigated in the online loyalty research stream which tend to be based on functional drivers with very few examining psychological drivers and in particular the bonds between consumers and retailers (Cyr, 2013; Chou & Hsu, 2016). While most studies examining online loyalty focus on the technical and functional aspects of the website, relatively little is still understood around social and psychological interactions. Investigating technical aspects of online loyalty may have created some competitive advantages in the early development stages of retail e-commerce but these effects may be diminishing. As online experiences become more homogenised and e-tailers offer more sophisticated and well designed shopping experiences, additional areas for differentiation are sought after. Psychological interactions and relationship development strategies regarding online loyalty formation are still under-researched and could provide new avenues for differentiation. While the role of retailer investments as a psychological driver have been found to be influential in loyalty formation offline, studies are more limited online (De Wulf et al., 2001). There

has been little focus on the effect of perceived relationship investment as an antecedent to online loyalty in an e-tailing context (Athanasopoulou, 2009; Valvi & Fragkos, 2012; Toufaily et al., 2013; Verma et al., 2016). At present three studies exist in the e-tailing literature examining online perceived relationship investment (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013). However, given these studies offer a single country perspective are not able to provide a multi-country, multi-sector perspective which this study is able to do.

While e-tailers pursue international expansion strategies and cross-border shopping increases, the need to understand consumers across a range of international markets and sectors becomes more pressing. Given the practical considerations usually associated with international studies, empirical evidence in an e-tailing context with larger datasets is lacking. To address this issue, this study provides a robust empirical dataset with a larger sample size. Furthermore, strong cross validation support is provided, given the ten sub datasets involved (four country datasets in two sectors, with an additional two aggregate datasets). A concern has been raised regarding the lack of inclusion of moderators in relationship marketing studies in a retailing context (Athanasopoulou, 2009; Valvi & Fragkos, 2012; Toufaily et al., 2013). While the focus has tended to be on direct relationships, boundary effects are addressed less in the literature. To address this gap three moderating effects are examined including; consumer cosmopolitanism, product category involvement and national culture (individualism/collectivism). Furthermore, to provide a more comprehensive perspective on online loyalty formation across countries, both aggregate (Hofstede's cultural dimensions) and individual (consumer cosmopolitanism) level frameworks are employed.

Literature focusing on online loyalty across countries is limited. In a recent study of online loyalty literature conducted by Toufaily et al. (2013), only three cross-country studies were included out of a total of forty-four, highlighting major gaps regarding comparative multi-country studies. Whilst previous studies have focused on culturally similar countries (De Wulf et al., 2001), there is currently limited evidence on conventionally Eastern and Western societies. Given that the largest retail e-commerce market is China, with India predicted as having one of the fastest growth rates, these two traditionally Eastern culture based countries are of prime importance in the global market but have been relatively under-researched collectively (Ben-Shabat et al., 2015). This study offers a comparison of these countries with more traditionally Western culture based countries including the US and UK (another two key retail e-commerce markets) addressing a gap in the literature. Furthermore, this study examines China, India, the UK and US with both aggregate and individual level criteria, thereby comprehensively examining national differences and individual similarities simultaneously.

A range of theoretical approaches have been utilised within the online loyalty literature which focus on functional, transactional and exchange theories with very few studies incorporating reciprocal exchanges as a theoretical underpinning. The role of reciprocity has been included in the general offline loyalty literature and in a handful of retailing studies (Yoon et al., 2008; Rafiq et al., 2013; Swoboda et al., 2016; Kozlenkova et al., 2018). Reciprocity as a theoretical underpinning has a close association with relationship quality and relationship marketing and provides a powerful mechanism in explaining relationship development. To the researcher's knowledge no prior studies have examined theoretical implications of reciprocity across countries in a consumer-firm context. Only one study has been identified as examining reciprocity and culture, but this is based in a

B2B context and involves only two countries (Hoppner et al., 2015). This study seeks to address this gap and explicitly involves reciprocity as a theoretical foundation across countries and sectors.

Although it is widely accepted that RQ is an important determinant of customer loyalty further investigation is still required in an online and increasingly important international context (Gefen & Heart, 2006; Gracia et al., 2015; Chen et al., 2015). A number of studies online examine RQ as an aggregate construct and do not examine the individual dimensions (Izogo, 2016). A greater understanding is required regarding the effects of the individual dimensions of RQ (online ongoing trust, online relationship satisfaction and online affective commitment), their interrelationships and directionality between each other. Furthermore, the effect of RQ across countries is relatively under-explored with limited studies either focusing on an aggregate view of RQ (De Wulf et al., 2001) or through dimensions of trust and commitment with the omission of satisfaction (Samaha et al., 2014). This study addresses a gap by examining RQ as a disaggregated construct and provides empirical evidence on the individual magnitude of effects across countries and sectors. Adopting this approach provides specific detail on online loyalty formation through individual relationships which is generally not available in the literature. A range of relationship are able to be examined including partial and full effects providing further detail on these relationships across countries and sectors.

### **1.5 Research Question and Objectives**

The focus of this study is directed towards the psychological aspects of the retailer-consumer relationship and focuses on reciprocating behaviours towards e-tailer investments in the relationship. The aim is to provide further insight into online loyalty

formation through this mechanism across countries and sectors which is currently lacking.

In order to address these issues the main research question is presented as:

**Research Question:**

**How does the reciprocating behaviour of consumers resulting from online perceived relationship investment affect online loyalty formation across countries and sectors?’**

The objectives of the study are threefold. One of the main objectives is to utilise a model incorporating three moderators alongside key constructs and their interrelationships affecting online loyalty. This allows for a further exploration of the magnitude and directionality of effects on the individual dimensions of relationship quality. The model has been developed allowing a range of relationships to be examined including any full and partial effects. Boundary conditions are able to be examined as part of an integrated model.

**Objective one: Utilise an integrated model examining boundary conditions and the effects of online perceived relationship investment on online loyalty through the individual dimensions of relationship quality and the interrelationships within the dimensions of relationship quality.**

The second objective is to examine the relationships created in the model and how these relationships may vary across countries and sectors through theoretical underpinnings of RQ and reciprocity. The following countries; China, India, UK and US have been chosen due to their significance globally as retail e-commerce markets (eMarketer, 2018). The clothing and electrical sectors have been selected due to their competitive nature and variety in terms of product category involvement and hedonic and utilitarian dimensions

(Kushwaha & Shankar, 2013). This gives further insight into how attitudes towards online loyalty may vary across countries and sectors.

**Objective two: Investigate the effects of online perceived relationship investment on online loyalty through individual dimensions of relationship quality, from the theoretical perspective of reciprocity, in a multi-country and multi-sectoral setting.**

The third objective is to investigate boundary conditions through the inclusion of three moderators; consumer cosmopolitanism, product category involvement and national culture (individualism and collectivism). Moderating influences are examined on the indirect relationship between online perceived relationship investment and online loyalty through the individual dimensions of relationship quality (online ongoing trust, online relationship satisfaction and online affective commitment). Theoretical underpinnings of reciprocity are further applied when examining moderating influences. Studies using these constructs within this context are limited and hence this study aims to provide valuable insight into online loyalty formation. Additionally, the inclusion of aggregate and individual level frameworks provides a distinctive comparative approach of examining countries.

**Objective three: Investigate the moderating role of consumer cosmopolitanism, product category involvement and national culture on the indirect effect of online perceived relationship investment on online loyalty through the individual dimensions of relationship quality, from the theoretical perspective of reciprocity.**

## **1.6 Contribution of Study**

This study will add to the literature by advancing theoretical and empirical knowledge in the evolving field of online loyalty. By addressing the research question this study aims to make several contributions to the literature surrounding online loyalty.

**First, it aims to offer a comprehensive conceptual model integrating boundary conditions alongside the effects of online perceived relationship investment on the individual dimensions of relationship quality (trust, satisfaction, and commitment) and online loyalty.** This allows for a further exploration of the magnitude of these effects on the individual dimensions of relationship quality as well as the interrelationships and directionality between the individual dimensions. Boundary conditions are integrated into the model and explored through moderators.

**Second, it advances the understanding of online loyalty formation in an international context examining psychological drivers through a comparative approach.** In particular, online perceived relationship investment is examined as a psychological driver which has received little attention in the e-tailing literature. Furthermore, building on a theoretical foundation of reciprocity this study examines online loyalty from a psychological aspect and incorporates a theoretical foundation not widely used in the online loyalty literature. Given the increasing focus on international expansion and growth of cross-border shopping, understanding online consumer perceptions and attitudes towards loyalty across countries and sectors becomes of prime importance for e-tailers to compete more effectively.

**Third, relationship quality is examined from an international perspective incorporating a disaggregated model of RQ.** This allows for the magnitude of

individual effects comprising of RQ to be examined in more specific detail and moves away from the more commonly used aggregate model of RQ. The disaggregated approach is more useful in an international comparative study and allows individual dimensions to be more readily compared across countries and sectors. This is particularly useful given individual dimensions may vary across countries due to cultural considerations. Furthermore, interrelationships between the individual dimensions can be more easily be examined and compared across countries and sectors.

**Fourth, this study aims to advance theoretical knowledge concerning relationship quality by examining moderating influences of consumer cosmopolitanism, product category involvement and national culture.** Boundary conditions are examined through moderating effects comprising of consumer cosmopolitanism, product category involvement and national culture on the indirect effect of online relationship investment and online loyalty through the individual dimensions of relationship quality. Additionally, comparisons can be made across countries based on aggregate (national culture) and individual level frameworks (consumer cosmopolitanism) providing a more comprehensive understanding of consumers in an international context.

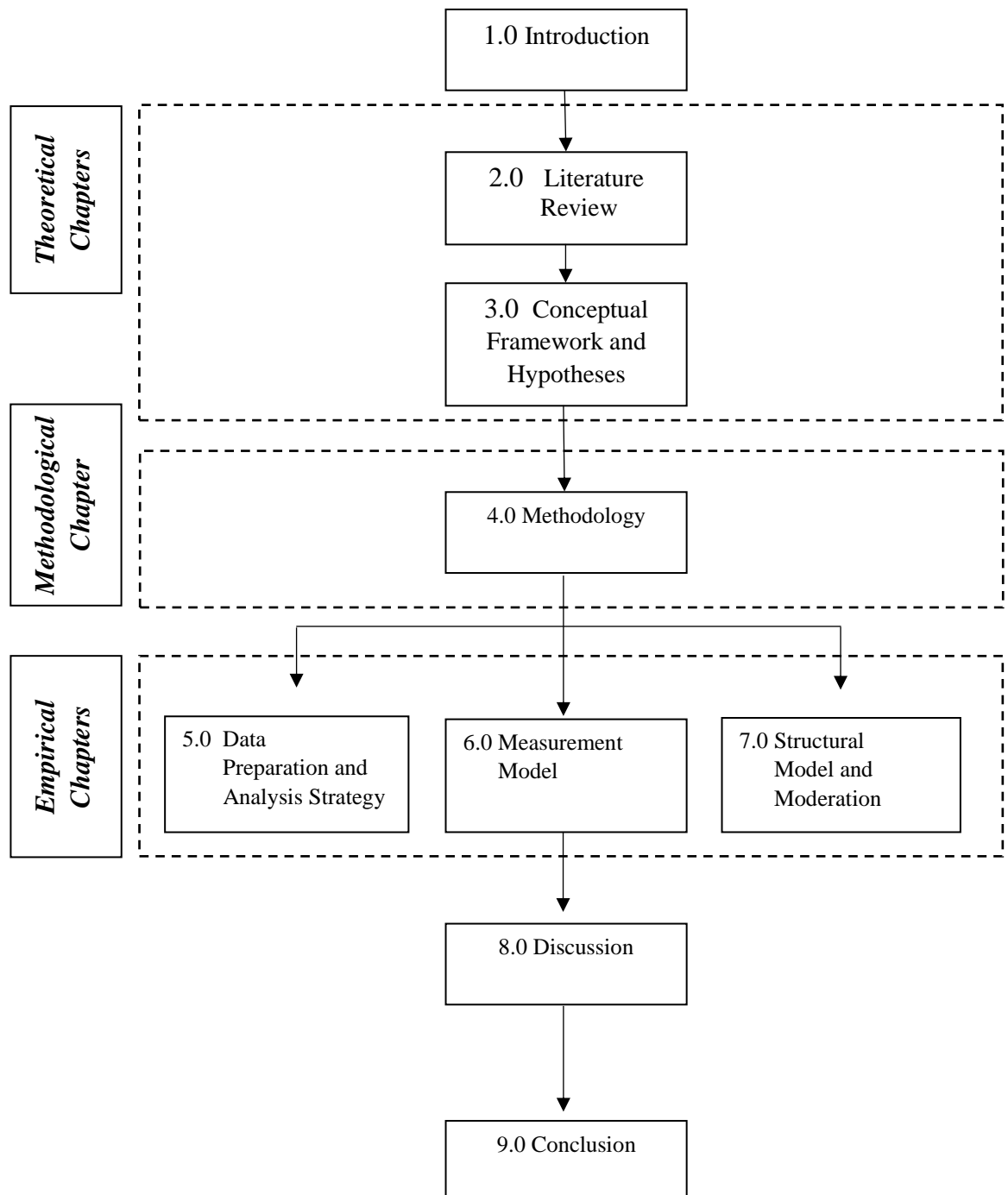
**Fifth, it presents empirical evidence on online loyalty formation in an international context.** Based on consumer surveys this study provides sought after empirical evidence on the impact of online perceived relationship investment on relationship quality and online loyalty, across different countries and sectors. It will offer further empirical evidence on consumers' degree of cosmopolitan orientation in India, China, US and UK, given relatively little empirical evidence exists on the role of consumer cosmopolitanism in online loyalty formation. The provision of a larger dataset provides for more robust analysis given the ability to cross validate results across a number of sub datasets.



## 1.7 Thesis Structure

An overview of the thesis structure is given in Figure 1.2 highlighting theoretical, methodological and empirical chapters.

**Figure 1.2 Thesis Structure**





## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

The aim of this chapter is to provide an overview of the current state of knowledge surrounding online loyalty in an international context with a specific theoretical focus on relationship marketing, relationship quality and reciprocity. The first section focuses on online loyalty and its emergence from the customer loyalty research stream. This is then more specifically explored in relation to international online loyalty studies. The next section examines the main proposed antecedent to online loyalty and concentrates on online perceived relationship investment. This is followed by an examination of the main theoretical underpinnings for the study which revolve around relationship marketing, relationship quality and reciprocity. The next sections offer a more detailed discussion on the individual dimensions of relationship quality used in this study centring on online; trust, satisfaction and commitment. Following on from this interrelationships between trust, satisfaction and commitment and examined and directionality of these relationships. Finally, moderating influences are examined within the context of online loyalty including; consumer cosmopolitanism, product category involvement and culture culminating with a summary at the end of the chapter.

### **2.1 Online Loyalty**

Online loyalty in the retailing sector has increasingly gathered interest alongside the growth of online shopping (Gefen, 2002; Srinivasan et al., 2002; Grewal & Levy, 2007; Toufaily et al., 2013). Emerging from more traditional research streams based around customer loyalty, online loyalty demonstrates many similarities to offline loyalty. It is widely accepted higher levels of customer loyalty and improvements in customer

retention can be beneficial to organisations including retailers (Reichheld & Schefter, 2000). Studies have shown loyalty can lead to improvements in; profitability (Reichheld, 1996; Reichheld & Schefter, 2000; Wallace et al., 2004; Kumar Roy et al., 2017), positive word of mouth (Zeithaml, 1988; Jayawardhena & Wright, 2009; Roy et al., 2014), resistance to competitor actions (Dick & Basu, 1994) and greater confidence in the brand (Chaudhuri & Holbrook, 2001). One of the earliest and most widely quoted empirical studies on customer loyalty examines profitability across a range of sectors. The study developed by (Reichheld & Sasser Jr., 1990) found increasing customer retention by 5% could increase profits from 25% to 95%. While this study is pivotal in setting an agenda for customer retention, it primarily focuses on physical organisations in the services and industrial sectors, providing little insight into online retailing. A subsequent study developed by Reichheld & Schefter (2000), argue while a similar pattern of loyalty is found online where initial losses are followed by increasing profits, this is exaggerated in an online context. Customer acquisition in the clothing e-tailing environment was estimated as costing 20% - 40% more for pure-play internet retailers compared to traditional clicks and mortar companies with similar costings in the electrical products sector. The results suggest while costs of customer acquisition may initially be higher online in the short term, profitability through increased repurchases may be substantially higher over the longer term.

A number of studies assert there is a clear difference between the factors that affect online and offline loyalty and each should be treated differently (Shankar et al., 2003; Melis et al., 2015; Tsiotsou et al., 2016; Kozlenkova et al., 2017). Offline loyalty refers to loyalty with retailers in a physical setting where loyalty is affected by physical cues. Initiatives such as improving the physical appearance, updating storefronts, and training

service personnel have been shown to affect loyalty (Sirohi et al., 1998; Wind & Rangaswamy, 2001). However, in the online environment, as these physical cues do not exist, consumers must rely on virtual cues when making judgements regarding retailers. Studies have examined website functionality including navigation and design issues (Cyr, 2008; Ganguly et al., 2010; Cyr, 2013; Loureiro & Roschk, 2014), product assortment and choice (Srinivasan et al., 2002; Melis et al., 2016) security and payment options (Miyazaki & Fernandez, 2001; Bart et al., 2005; Chang & Chen, 2009), online reviews and social media communities (Ko et al., 2006; Park et al., 2007; Kim & Ock, 2008; Kozlenkova et al., 2017) branding cues (Jones & Kim, 2010; Lee, 2011; Saini & Lynch, 2016) and excitement and enjoyment appeals (Menon & Kahn, 2002; Jayawardhena & Wright, 2009).

While online loyalty as a subject area has garnered interest over the last few years it has been examined across a range of areas including travel and hospitality (Harris & Goode, 2004; Kim et al., 2011; Jeon & Jeong, 2016; Kharouf et al., 2018) online healthcare (Gummerus et al., 2004; Martínez-Caro et al., 2013; Moreira & Silva, 2015), gaming (Choi & Kim, 2004; Teng, 2010; Balakrishnan & Griffiths, 2018) and online retail banking (Mukherjee & Nath, 2003; Floh & Treiblmaier, 2006; Amin, 2016; Brun et al., 2016). While these studies may prove useful in understanding online loyalty generally, there is a need to understand the specific mechanisms of online loyalty formation within an e-tailing context.

### **2.1.1 Attitudinal and Behavioural Dimensions of Loyalty**

The conceptualisation of online loyalty has proved challenging in the e-tailing literature (Toufaily et al., 2013). A number of definitions solely focus on action related drivers including repurchase intention or repeat visits to an e-tailer's website. For example Cyr (2005:7) defines online loyalty as '...repeat purchase intention or intended return visits to a website'. A criticism of this approach is the lack of attention on psychological drivers which could be more indicative of true loyalty (Kim et al., 2009; Jacoby & Cheshunt, 1979). Addressing these concerns other studies conceptualise online loyalty through the addition of more psychological based drivers. Anderson and Srinivasan (2003: 125) define online loyalty as '...customer's favorable attitude toward an electronic business resulting in repeat buying behaviour'. While favourable attitudes reflect positive intentions from consumers, explicit actions are not identified. Extending this rationale, studies have supported the inclusion of (positive) word of mouth as an aspect of favourable attitude to conceptualise loyalty (Gruen et al., 2006). Reicheld and Schefter (2000) emphasise the value of e-loyalty through repurchase intention and referrals online. A common adaptation of online loyalty is taken from Gefen (2002:29) based on the work of Zeithaml et al. (1996) who view online loyalty as '...customer intentions to do more business with the vendor and to recommend that vendor to other customers'. This definition incorporates two aspects of loyalty; continuation of the relationship (repurchase intention) and recommendations (word of mouth) both culminating in positive action based and psychological drivers of loyalty.

This conceptualisation of online loyalty primarily focuses on attitudinal dimensions of loyalty which are often seen as psychological attitudes towards potential future

behaviours and in an online context can include; intention to revisit site, repurchase intention, positive word of mouth and stickiness (Yang et al., 2004; Gruen et al., 2006; King et al., 2014; Yoo et al., 2015; Bulut & Karabulut, 2018). In contrast behavioural dimensions are based on actual outcomes and often include; frequency of visit to site, average length of visit and share of wallet (Cooil et al., 2007; Keiningham et al., 2015; Chocarro et al., 2015; Melis et al., 2016). While some studies recommend an integrated approach incorporating both attitudinal and behavioural dimensions (Lee, 2002; Donio' et al., 2006; Santouridis & Trivellas, 2009), other studies argue attitudinal dimensions of loyalty can be considered acceptable substitutes for behavioural dimensions (Pan et al., 2012). Supported by a number of studies (Gefen, 2002; Park & Kim, 2008; Doong et al., 2008; Jin et al., 2008; Rafiq et al., 2013) this singular approach is argued to be robust enough to provide valuable insight.

Examining the online loyalty research stream, two main categories emerge with antecedents based on; consumer and website characteristics (Valvi & Fragkos, 2012; Toufaily et al., 2013). While studies examining consumer characteristics focus on psychological drivers of online loyalty formation, studies investigating website characteristics emphasise functional drivers. The distinction between these two areas is particularly important as a greater emphasis tends to be placed on website characteristics furthering an understanding of functional drivers rather than psychological drivers. For example, Cyr (2013) conducts an eight country investigation examining user perceptions of website design. Although the role of trust is examined, the study focuses on consumer perceptions of website design. Areas examined include; information content, information design, navigation design and visual design. Given its focus on website characteristics this study provides a greater understanding of trust formation in relation to functional

drivers. In a similar vein a number of studies investigating online loyalty concentrate on website characteristics and functional drivers (Goode & Harris, 2007; Cyr, 2008; Park & Kim, 2008; Cyr et al., 2010; Ganguly et al., 2010; Kassim & Abdullah, 2010; Chen et al., 2015; Gracia et al., 2015).

In contrast, studies examining online loyalty through psychological drivers are found less in the online loyalty research stream. For example Elbeltagi and Agag (2016), focus on consumer perceptions of online retailing ethics (CPORE) as an antecedent of repurchase intention in Egypt while Jin et al. (2008) examine firm reputation in South Korea and US. While the range of psychological drivers are diverse the number of studies examining online loyalty are limited in comparison to the number of studies examining functional drivers. A reason for this could be due to the initial attention given to online shopping experiences through web platforms, seeking to address issues concerning poor design and usability (Cyr, 2008). Studies that do exist that examine psychological drivers tend to emerge from the traditional loyalty research stream and concentrate primarily on relationship variables including online; trust, satisfaction and commitment (Balabanis et al., 2006; Wang & Head, 2007; Jin et al., 2008; Yoon et al., 2008; Rafiq et al., 2013).

Additionally, a number of studies that exist in the loyalty research stream offer comparisons between offline and online loyalty (Degeratu et al., 2000; Shankar et al., 2003; Melis et al., 2015; Tsiotsou et al., 2016; Saini & Lynch, 2016). A more recent examination of online and offline integration has focused on showrooming and webrooming techniques (Herhausen et al., 2015; Rapp et al., 2015; Verhoef et al., 2015; Jing, 2018; Sit et al., 2018; Arora & Sahney, 2018).



This emerging stream of research investigates the consumer decision making process in a multi-channel environment (Verhoef et al., 2015; Gensler et al., 2017). Showrooming examines how consumers intentionally visit physical stores before purchasing online highlighting the sensory need for consumers to touch and examine products before purchase (Gensler et al., 2017; Jing, 2018). Webrooming focuses on dynamics of consumers investigating products online before making purchasing decisions, suggesting more price sensitivity and value seeking motives (Flavián et al., 2016; Jing, 2018). More recent studies suggest the interactions of showrooming (in-store mobile offers and digital experiences) and webrooming (better online search and online reviews) could lead to more favourable impressions and positive interactions from consumers (Flavián et al., 2016; Sit et al., 2018). This may not solely be related to negative behaviours such as cross channel free riding (Van Baal & Dach, 2005). Emerging from this integrative approach additional studies examine online and offline integration (O2O) in a wider context. These studies predominantly focus on Asia-Pacific countries given the higher levels of smartphone penetration and is more commonplace in China (PWC, 2015). Online to offline (O2O) is a business model that encompasses online interactions to offline services (Zhang, 2014; Du & Tang, 2014; Yang et al., 2016; Yue, 2016; Shen et al., 2018; Yan & Pei, 2018). It has traditionally evolved from service sites (e.g. Groupon where users can purchase online and enjoy experiences offline) and is popular in areas including restaurants, hotels and gyms (Du & Tang, 2014; Yue, 2016). Essentially consumers can purchase services online and validate consumption offline. However, given the increase in smartphone penetration e-tailers are employing O2O strategies in store, where customers can browse and purchase online (through QR codes, location based services, merchants own website) and collect in store (Yue, 2016).

### **2.1.2 International Studies and Online Loyalty**

The research stream examining online loyalty from an international perspective is particularly narrow with a number of researchers calling for more research in this area (Gefen & Heart, 2006; Valvi & Fragkos, 2012; Toufaily et al., 2013; Chen et al., 2015; Gracia et al., 2015). This is surprising considering the growth in international e-tailing fuelled by both e-tailer expansion strategies and cross-border shopping (eMarketer, 2018). The need to further understand online loyalty formation across various international settings has therefore become increasingly more apparent. The limited number of studies that do exist that examine online loyalty in an e-tailing context predominately focus on Western based e-commerce markets which tend to be more developed and mature (Gefen, 2002). Attention is therefore drawn to a lack of studies that are based on understanding, younger and nascent e-commerce markets (Gefen, 2002; Anderson & Srinivasan, 2003; Kim et al., 2009; Valvi & Fragkos, 2012; Toufaily et al., 2013; Pandey et al., 2015).

In a critical review of the online loyalty literature conducted by Valvi & Fragkos (2012), results from a Web of Science sample in 2011, show that the number of online loyalty studies based on geographic location is highly skewed. The US demonstrates the largest percentage of studies with 31%, followed by China at 15% and the UK with 8.2%. Interestingly figures for India are not given and these studies are included in a generic grouping with other countries. This suggests the number of studies examining online loyalty in India is relatively low and could be a reason why an individual country classification is not given. However, this is surprising given the strong growth predictions and potential of the Indian retail e-commerce market (eMarketer, 2018). In another meta-analysis review of empirical studies concentrating on online loyalty the limited number

of cross-country studies are singled out. The study conducted by Toufaily et al. (2013) presented only three specific cross country studies out of a total of forty-four. However only two could be clearly identified in the paper belonging to Cyr et al. (2005) and Cyr (2008). Both studies are similar in that they emerge from the same author and examine website design and culture in the context of trust, satisfaction and loyalty. While Cyr et al. (2005), investigates Canada, Germany and China, Cyr (2008) focuses on Canada, US, Germany and Japan. Both studies are motivated by functional drivers of website characteristics.

These results suggest a need to understand online loyalty formation across a wider range of countries additionally including India. Given the growing importance of more Eastern based retail e-commerce markets in a global context including China and India, further investigation into these markets is warranted, with a particular emphasis on India (Cyr et al., 2008; Pandey et al., 2016). E-tailing studies within an international context predominantly examine online loyalty through functional drivers mostly incorporating website design and technical aspects (Jarvenpaa et al., 1999; Cyr, 2008; Ganguly et al., 2010; Cyr, 2013; Chen et al., 2015), whereas studies focusing on psychological drivers including consumer attitudes and perceptions are more limited (Elbeltagi & Agag, 2016; Frassetto et al., 2017). Both sets of research streams similarly tend to focus on the role of culture to help examine differences between countries. This is found in both the online and offline online loyalty literature (Yamagishi & Yamagishi, 1994; Doney et al., 1998; Cyr, 2008; Jin et al., 2008).

Two of the most notable studies in the international e-tailing area have been mentioned previously; Cyr et al. (2005) and Cyr (2008). In an extension of these studies, Cyr (2013) further examines the impact of website design through information content, information

design, visual design and navigation design on website trust and transactional security across eight countries; Canada, US, India, Germany, Japan, Mexico, Chile, China. While these studies provide useful insight across countries, online loyalty is examined from a functional perspective focusing on consumer responses to website design across cultures.

While a number of studies argue that emotional attachment and the development of psychological bonds may be a stronger drivers of loyalty strength, they are under researched in an international e-tailing context (Fullerton, 2005; Evanschitzky et al., 2006; Rafiq et al., 2013; Frasquet et al., 2017). Consequently, the importance of understanding online loyalty mechanisms through psychological drivers as opposed to functional drivers may provide valuable insight into online loyalty formation. More importantly this approach may provide e-tailers with opportunities to develop stronger relationships with consumers and further strengthen online loyalty. Although a handful of studies explore some psychological drivers these are limited to single and two country studies and do not address issues of emotional attachment through affective commitment (Jin et al., 2008; Elbeltagi & Agag, 2016; Frasquet et al., 2017). Furthermore, no international studies to the researcher's knowledge have examined the relationship between online loyalty and consumer cosmopolitanism or the role of reciprocity. An overview of studies examining international online loyalty in an e-tailing context and their relative positioning to this study is provided in Table 2.1. Studies examining general purchase intention are additionally included to provide a more inclusive perspective.

Table 2.1 Overview of online loyalty studies in an international and e-tailing context (1999 – 2018)

International (culture) studies in e-tailing. (Purchase Intention and Online Loyalty)						
Author	Journal	Sector/Location	Positioning	Theory/Model	Constructs	Comments
Jarvenpaa et al. (1999)	Journal Computer Mediated Communication	Bookstore sites Travel Sites  Australia Israel Finland (only bookstore)	Functional 3 countries No Reciprocity	Hofstede Culture    N=200	Perceived size/reputation Trust in store  Attitude/Risk perception  Willingness to buy <i>CO</i>	Perceived reputation had a more significant effect on a consumer's trust than the merchant size across all three countries No strong cultural differences between effect of perceived size/reputation and trust Greater web experience is associated with lower trust
Jarvenpaa et al. (2000)	Business Research Quarterly	Bookstore sites Travel Sites  Australia	Functional 1 country No Reciprocity	Theory Reasoned Action  Theory Planned Behaviour  Exchange Theory  Balance Theory N=184	Perceived size/Reputation  Trust in store/Attitude/Risk perception Willingness to buy	Trust is more influenced by perceived size in higher value sectors (travel sites)
Pavlou & Chai (2002)	Journal Electronic Commerce Research	Self-selected web retailer   China US	Functional 2 countries No Reciprocity Moderators Culture	Hofstede Culture   Theory Planned Behaviour  N=113	Trust  Attitude, Perceived behaviour control  Social norms/Influence  Transaction intentions <i>CO PD LTO</i>	CO, PD, LTO all show moderating influences on e-commerce adoption  Attitude has a significant effect on Transaction intention and moderated by Collectivism (China had a stronger impact on relationship)  Trust positively affects Attitude and Perceived behaviour control in China and US  <b>Moderators: CO, PD, LTO</b>
Cyr et al. (2005)	Journal of Global Information Management	Samsung Website (Native and Foreign)   Canada, US, Germany, Japan	Functional 4 countries No reciprocity	Hofstede Culture    N=114	Website design Website trust Website satisfaction Website loyalty   <i>IND COL</i>	Similar levels of satisfaction, trust and loyalty towards the foreign and local version of the Samsung website are shown between Canadian and German respondents. American respondents are more loyal to the local Samsung website and Japanese respondents equally trust the local and foreign website.
Hofstede's Dimensions of Culture: (CO – Collectivism, IND - Individualism M – Masculine/Feminine, UA – Uncertainty Avoidance, LTO - Long Term Orientation, PD - Power Distance, IG - Indulgence, PRA - Pragmatism) N= Sample Size						

Continued.

International (culture) studies in e-tailing. (Purchase Intention and Online Loyalty)						
Author	Journal	Sector/Location	Positioning	Theory/Model	Constructs	Comments
<b>Teo &amp; Liu (2005)</b>	International Journal of Management Science	Books, music, travel websites  US Singapore China	Functional 3 countries No Reciprocity	Theory Reasoned Action    N= 2023	Perceived reputation/Size  Multi-channel, System assurance  Propensity to trust Consumer trust  Attitude/Perceived risk Willingness to buy	Consumer trust is positive related to Attitude and negatively related to Perceived risk  Relationships are similar across US, Singapore, China  System assurance has strongest effect on Trust in US and China Risk perception has the least negative relationship between Attitude and Willingness to buy in China and the most negative relationship in US
<b>Gefen &amp; Heart (2006)</b>	Journal Global Information Management	Book website Amazon.com  US Israel	Functional 2 countries No Reciprocity	Hofstede Culture    N=272	Familiarity/predictability Trust beliefs (ability, integrity, benevolence) Trusting behavioural intentions (inquiry/purchase intention) CO M PD UA	Trust beliefs specifically Integrity and Ability effect Behavioural trusting intentions in both US and Israel Ability significant predictor of trusting intentions in Israel (CO)  Predictability has a stronger effect on Integrity in US (IND)
<b>Cyr (2008)</b>	Journal of Management Information	SonyStyle website  Canada Germany China	Functional 3 countries No Reciprocity	Hofstede Culture    N=571	Navigation/Visual/Information design Trust, Satisfaction  E-loyalty CO UA	Trust positively affects E-loyalty across Canada, Germany and China  Satisfaction positively affects E-loyalty across Canada, Germany and China  Trust is stronger predictor of E-loyalty where UA is higher
<b>Jin et al. (2008)</b>	International Marketing Review	E-tailer most frequently shopped at  US South Korea	Psychological 2 countries No Reciprocity	Hofstede Culture   Hall (1983)  N=385	Firm Reputation  Satisfaction, Trust  E-Loyalty  CO UA	Stronger effect of Firm Reputation on Customer loyalty through Satisfaction in Korea compared to US  Trust positively affects E-loyalty with no culture differences based on CO and UA Trust positively affects Satisfaction with culture effects through IND. Stronger in US than S. Korea
<b>Hofstede's Dimensions of Culture:</b> (CO – Collectivism, IND - Individualism M – Masculine/Feminine, UA – Uncertainty Avoidance, LTO - Long Term Orientation, PD - Power Distance, IG - Indulgence, PRA - Pragmatism) N= Sample Size						

Continued.

International (culture) studies in e-tailing. (Purchase Intention and Online Loyalty)						
Author	Journal	Sector/Location	Positioning	Theory/Model	Constructs	Comments
Yoon (2009)	Information and Management	Generic online shopping at website No specific details given  China	Functional 1 country No Reciprocity	Hofstede Culture   N=270	Perceived ease of use/Usefulness  Trust  Intention to use <i>CO M UA LTO</i>	UA and LTO moderate effects on relationship between trust and intention to use  Masculinity has a moderate effect on relationship between perceived usefulness and intention to use and on the relationship between perceived ease of use and intention to use. PD and IND show no significant moderating effect Trust has a direct positive effect on Intention to use
Frost et al. (2010)	Internet Research	Various self selected websites Australia	Functional 1 country No Reciprocity	Triandis (1994)  Typology  N=140	Loyalty to e-tailer  Horizontal and vertical individualism and collectivism <i>CO</i>	Individualism and collectivism (horizontal and vertical) does not influence online loyalty
Ganguly et al. (2010)	International Journal Electronic Business	Various self selected websites Canada India US	Functional 3 countries No Reciprocity Moderators Culture	Hofstede Culture   N=582	Information/Visual/ Navigation design Online trust  Perceived risk Purchase Intention  <i>M UA CO</i>	No significant relationship between Visual design and Navigation design and Trust in India, but significant in US and Canada. Collectivism negatively moderates the relationship between trust and purchase intention  UA moderates the relationship between Navigation design and Trust Trust acts as a mediator between Information, Visual and Navigation design and purchase intention <b>Moderators: M UA CO</b>
<b>Hofstede's Dimensions of Culture:</b> (CO – Collectivism, IND - Individualism M – Masculine/Feminine, UA – Uncertainty Avoidance, LTO - Long Term Orientation, PD - Power Distance, IG - Indulgence, PRA - Pragmatism) N= Sample Size						

Continued.

International (culture) studies in e-tailing. (Purchase Intention and Online Loyalty)						
Author	Journal	Sector/Location	Positioning	Theory/Model	Constructs	Comments
<b>Cyr (2013)</b>	Electronic Commerce Research Applications	SonyStyle website  Canada, US, India, Germany, Japan, Mexico, Chile, China	Functional 8 countries No Reciprocity	Hofstede Culture Clustering Theory Fukuyama (1995)  N= 1,156	Information content Information/Navigation / Visual Design Website Trust Transactional Security UA	Overall support for the GLOBE clustering theory approach. Clusters exhibit similar responses for Website trust and Transaction security. Exceptions of differences in results in the Asia cluster between Japan and China.  Low UA users in high trust countries (e.g. Canada and US) provide highest ratings for Website trust over high UA users in low trust countries (e.g. Chile and Mexico).  Middle ratings for Website trust are shown in countries with mixed UA and high/low trust scores (e.g. Indian, Germany, China and Japan)
<b>Chen et al. (2015)</b>	Information Systems Frontiers	Self selected website  Thailand Taiwan	Functional 2 countries No Reciprocity Moderator Culture	Information Systems Success Model Hofstede Culture  N=227	Information/System/Service quality Trust/Satisfaction  E-Loyalty <i>CO</i>	Customer satisfaction is positively related to E-loyalty in both Thailand and Taiwan  No direct relationship exists between Trust and E-loyalty in Taiwan Trust is positively related to E-loyalty in Thailand  Individualism has a moderating effect on the path between Information Quality and Trust, Information quality and Customer satisfaction and System quality and Trust Collectivism has a moderating effect on the path between system quality and trust and service quality and trust <b>Moderator: CO</b>
<b>Gracia et al. (2015)</b>	Business Research Quarterly	Self selected website  Argentina Spain	Functional 2 countries No Reciprocity Moderator Culture	Service Quality Hofstede Culture  N=277	Efficiency/privacy/fulfilment/system E-service quality, Satisfaction Loyalty intentions  Culture (PD, CO, UA, M, PRA, IG) Control variables (gender, age, education)	Satisfaction positively effects Loyalty intentions  E-service positively effects Satisfaction  Individualism moderates the effect of E-service quality on Loyalty  Collectivism moderates the effect between Satisfaction and Loyalty  <b>Moderators: PD CO UA M PRA IG</b>
<b>Hofstede's Dimensions of Culture:</b> (CO – Collectivism, IND - Individualism M – Masculine/Feminine, UA – Uncertainty Avoidance, LTO - Long Term Orientation, PD - Power Distance, IG - Indulgence, PRA - Pragmatism) N= Sample Size						

Continued.



International (culture) studies in e-tailing. (Purchase Intention and Online Loyalty)						
Author	Journal	Sector/Location	Positioning	Theory/Model	Constructs	Comments
<b>Elbeltagi &amp; Agag (2016)</b>	Internet Research	Electrical goods  Egypt	Psychological 1 country No Reciprocity Moderator Culture	Hofstede Culture  Commitment-Trust Theory  N=310	Privacy, Security, Reliability, Non-deception, Service recovery, CPORE , Trust, Commitment, Satisfaction, <i>IND PD</i>	CPORE (Consumer Perceptions of Online Retailing Ethics) is positively related to Satisfaction Trust and Commitment have a mediating effect on the relationship between CPORE and Satisfaction. Individualism has a moderating effect on the path between CPORE and Satisfaction. Trust is positively related to Satisfaction and Commitment <b><i>Moderators: IND PD</i></b>
<b>Frasquet et al. (2017)</b>	International Journal of Retail Distribution and Management	Clothing  UK Spain	Psychological 2 countries No Reciprocity Moderator Culture	Hofstede Culture Theory of Cognitive Dissonance  N = 761	Brand trust Brand attachement Offline loyalty  Online loyalty  Control variables (hedonic orientation, product involvement, ease-of-use, usefulness) <i>IND UA</i>	Offline loyalty is positively related to Online loyalty Brand trust positively affects Offline loyalty and Online loyalty Brand trust positively affects Offline loyalty and Online loyalty  Brand attachment positively affects Offline loyalty but not Online loyalty  No moderating effects of culture are present <b><i>Moderators: IND UA</i></b>
<b>Peña-García et al. (2018)</b>	Journal of Electronic Commerce	Electronic Goods  Columbia Spain	Functional 2 countries No Reciprocity	Hofstede Culture  Brand equity  Value-Satisfaction-loyalty chain  N=585	Enjoyment, Trust, Perceived value Perceived risk, satisfaction Trust, Attitudinal loyalty Repurchase Intention, Word of Mouth (WOM) <i>IND CO</i>	E-trust positively effects Attitudinal loyalty in Columbia but not in Spain  Satisfaction positively effects Attitudinal loyalty in Columbia but not in Spain Columbia (developing retail ecommerce market), Spain (developed retail e-commerce market) Culture moderates the effect of E-trust on Attitudinal loyalty and satisfaction on Attitudinal loyalty, and attitudinal loyalty and Word of Mouth

**Hofstedes Dimensions of Culture:**(CO – Collectivism, IND - Individualism M – Masculine/Feminine, UA – Uncertainty Avoidance, LTO - Long Term Orientation, PD - Power Distance, IG - Indulgence, PRA - Pragmatism) N= Sample Size

## **2.2 Online Perceived Relationship Investment**

Perceived relationship investment is defined as ‘a consumer’s perception of the extent to which a retailer devotes resources, efforts and attention aimed at maintaining or enhancing relationships with regular customers’ (De Wulf et al., 2001:35). Online perceived relationship investment can therefore be considered as consumers’ perceptions of retailer investments online. The concept of perceived relationship investment initially emerges from the pivotal study by De Wulf et al. (2001) which is one of the first studies to empirically examine the impact of retailer investments on consumer relationships in an offline environment. According to De Wulf et al. (2001) relationship investment is found to positively affect relationship quality and in turn behavioural loyalty. While this study is significant in confirming the importance of relationship investments, the focus on offline relationship marketing tactics and the aggregate examination of relationship quality does not fully address issues pertaining to online relationship quality.

Retailer investments online will vary compared to offline investments due to the virtual environment and lack of physicality. According to Rafiq et al. (2013), these could include personalised web pages, tailored recommendations, and customised service. Further features could include; social media engagement and community development, online rewards and discounts, integration with smartphone devices and personalised offers. In contrast the DeWulf et al. (2001) study specifically included offline antecedents of perceived relationship investment; direct mail, preferential treatment, interpersonal communication and tangible rewards. Extending findings to an e-tailing context, Rafiq et al. (2013) examine the effect of online perceived relationship investment on the individual dimensions of relationship quality (trust, satisfaction and commitment). Additionally,

Rafiq et al. (2013), address the importance of online perceived relationship investment in a grocery e-tailing context and examine relationship quality through the individual dimensions of trust, satisfaction and commitment. Similarly, Wang and Head (2007) examine online relationship investments on individual dimensions of satisfaction and trust with the additional dimension of perceived switching costs. The Wang and Head (2007) study focuses on purchases of CD/DVDs online in Canada. Adopting a different approach Yoon et al. (2008) examine the effect of online relationship investment on loyalty through an aggregate construct of relationship quality. These three studies offer a strong foundation for investigating perceived relationship investment in an online context providing empirical evidence for the positive effect of online perceived relationship investment on online loyalty.

While perceived relationship investment has been studied widely in the B2B sector focusing on supplier relationships (Anderson et al., 1992; Kumar et al., 1995; Smith, 1998; Johnston et al., 2004; Liu et al., 2010; Liu et al., 2012; Bai & Sarkis, 2016), less attention is assigned to consumer markets (De Wulf et al., 2001; Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013; Park & Kim, 2014). A number of studies argue consumers are more likely to reciprocate on positive retailer efforts and investments in the relationship with higher levels of loyalty through increased levels of relationship quality (De Wulf et al., 2001; Rafiq et al., 2013). The effects of perceived relationship investment on loyalty are examined through relationship quality from both an aggregate (De Wulf et al., 2001; Yoon et al., 2008) and disaggregated perspective (Rafiq et al., 2013).

Online perceived relationship investment appears in studies in the financial sector (Liang et al., 2008), social media environment (Popp et al., 2016), online retailing sector (Wang

& Head, 2007; Yoon et al., 2008; Rafiq et al., 2013) and offline retailing environment (Park & Kim, 2014). Relationship investment is investigated from a consumer perspective through transaction cost theory, across online stores in Taiwan by Tsai and Huang (2009). Although relationship investments are found to positively affect loyalty, the study by Tsai and Huang (2009) examines consumer investments in the relationship rather than e-tailer investments and the cost of switching to other providers. While the meaning of relationship investment can vary across studies adopting either a supplier (retailer) or customer focus, the majority of studies examine supplier (retailer) investments in the relationship (De Wulf et al., 2001; Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013).

Although the significance of online relationship investment is confirmed across a range of studies, it is examined to a limited extent within an e-tailing environment (Verma et al., 2016). The relatively few studies that do exist within an e-tailing context confirm the positive effect of e-tailer investments on online loyal (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013). However, while they provide a meaningful introduction to online perceived relationship investment, they only provide a single country perspective and hence, do not explore complexities associated with international e-tailing. Furthermore, to the researchers knowledge relationship quality as a disaggregated construct (including commitment) is only employed in one previous single country study (Rafiq et al., 2013) and does not appear in any multi-country studies.

### **2.3 Theoretical Underpinning**

A number of different theoretical foundations are found in the literature examining online loyalty, highlighting the range of diverse approaches. Two of the most common

theoretical foundations include relationship marketing and relationship quality. The majority of studies examining online loyalty employ relationship marketing based theories focusing on interpersonal relationships between consumers and organisations, which is further reflected in a number of e-tailing studies (Srinivasan et al., 2002; Wallace et al., 2004; Donio' et al., 2006; Vesel & Zabkar, 2010; Toufaily et al., 2013; Rafiq et al., 2013; Jiang & Xu, 2015; Melis et al., 2015; Verma et al., 2016). Reciprocity is less commonly explicitly employed and highlighted in a limited number of online retailing studies (Yoon et al., 2008; Rafiq et al., 2013; Swoboda et al., 2016). While the role of reciprocity is acknowledged in a number of relationship marketing and relationship quality studies, inclusion is more implicit highlighting a lack of theoretical focus on reciprocity (Hoppner et al., 2015). Other theoretical approaches found in the international online loyalty literature are based around social psychology theories (Flavián et al., 2006; Koo, 2006; Elbeltagi & Agag, 2016), service theories (Lee & Lin, 2005; Jones & Kim, 2010; Gracia et al., 2015), information system theories (Gefen, 2002; Yoo et al., 2010; Chen et al., 2015), consumer behaviour theories (Jarvenpaa et al., 2000; Pavlou & Chai, 2002; Teo & Liu, 2007) and international marketing theories (Jin et al., 2008; Ganguly et al., 2010; Cyr, 2013).

### **2.3.1 Relationship Marketing**

A significant number of studies in the retailing sector focus on understanding relationship marketing as a research stream (Sheth & Parvatiyar, 1995a; Hennig-Thurau et al., 2002; Anderson & Srinivasan, 2003; Souitaris & Balabanis, 2007; Kim et al., 2009; Grewal & Levy, 2009; Vesel & Zabkar, 2010; Rafiq et al., 2013; Toufaily et al., 2013; Verma et al., 2016; Kumar et al., 2017; Steinhoff et al., 2018). Emerging from the services marketing

literature, a number of definitions of relationship marketing focus on the development and maintenance of long term customer relationships as a focal point for marketing strategies (Dwyer et al., 1987; Grönroos, 1994; Gummesson, 1994; Berry, 1995). Relationship marketing has been defined as an approach; ‘...to establish maintain, enhance and commercialize customer relationships (often but not necessarily always long term relationships) so that the objectives of parties are met’ (Grönroos 1990:5). This suggests developing long term relationships with customers that are mutually beneficial. Other definitions are contextualised within technology frameworks and focus on customer retention through individualised and personalised interactions (Srirojanant & Thirkell, 1998; Parvatiyar & Sheth, 2001; Jayachandran et al., 2005; Sun et al., 2007). More recently studies have examined the role of relationship marketing with database use and customer relationship management systems - CRM, (Sheth, 2002; Mitussis et al., 2006; Gummesson, 2011; Kumar et al., 2018). It is acknowledged the role of technology and CRM greatly facilitate personalised interactions which can manifest as retailer investments. However, given the focus of this study is on psychological aspects rather than technical aspects of relationship development, CRM is considered beyond the scope of this study.

In the retailing literature, studies have tended to focus on loyalty schemes as mechanisms to develop long term relationships by creating switching costs and tying consumers into relationships (Evanschitzky et al., 2006; Leenheer et al., 2007; Vesel & Zabkar, 2009; Reinartz & Linzbach, 2018). Such loyalty schemes tend to be based on economic (financial rewards, discounts) or social incentives (preferential treatment) resulting in barriers preventing consumers from switching to competitors (Dick & Basu, 1994; Mimouni-Chaabane & Volle, 2010; Stathopoulou & Balabanis, 2016). In relation to this

the effectiveness of loyalty schemes and their contribution in developing relationships has been questioned (Sharp & Sharp, 1997; Evanschitzky et al., 2006).

The role of relationship marketing in a business-to-consumer (B2C) environment has increasingly been examined with a growing focus seen in the e-tailing literature (Koo, 2006; Yoon et al., 2008; Athanasopoulou, 2009; Verma et al., 2016). Understanding relationship marketing in an online environment provides a different set of challenges compared to physical retailers (Danaher et al., 2003; Melis et al., 2015; Elms et al., 2016). Consumers are more sophisticated in their decision making processes due to; greater transparency of information online, access to product information and reviews, ability to make comparisons readily as well as being able to view shipping, delivery and pricing details immediately (Burke, 2002).

### **2.3.2 Relationship Quality**

Evolving from the relationship marketing literature, relationship quality has increasingly been applied in the e-tailing and online loyalty literature (Vesel & Zabkar, 2010; Walsh et al., 2010; Rafiq et al., 2013). Initially emerging as multi-dimensional construct in the work of Crosby et al. (1990), relationship quality is examined between salespeople and consumers in the life insurance sector. Relationship quality is viewed as the dynamics of long-term quality formation in ongoing customer relationships (Grönroos, 2007). This view reflects the long term view of the customer and the focus on cumulative encounters. The strength of the relationship is seen as a key indicator to the likely level of loyalty by the consumer. The general consensus infers that if consumers have a stronger relationship with the online retailer (hence, higher levels of relationship quality), there will be greater loyalty to that retailer (Crosby et al., 1990; Grönroos, 2007). Online loyalty is the most common outcome of relationship quality examined in the literature (Gefen, 2002;

Balabanis et al., 2006; Flavián et al., 2006). In a review of relationship quality studies in the retail environment conducted by Vessel & Zabkar (2010), the majority of studies were contextualised in the services sector (banking, travel, financial) with a handful set in the retailing sector and even less in the e-tailing sector. According to the relational mediator meta-analytical framework first proposed by Palmatier et al. (2006), and later applied in the online context by Verma et al. (2016), customer-focused relational mediators identified in the relationship marketing literature are; commitment, trust, relationship satisfaction and relationship quality. Consequences are identified as; expectation of continuity, word of mouth and customer loyalty. Antecedents are grouped into customer focused antecedents (relationship benefits, dependence of seller), seller focused antecedents (relationship investment, seller expertise) and dyadic antecedents (communication and similarity).

A number of online studies do not necessarily include the conceptualisation of relationship quality in their discussion and the various individual dimensions are more commonly examined including; online trust (Jarvenpaa et al., 2000; Teo & Liu, 2007; Ganguly et al., 2010), online satisfaction (Balabanis et al., 2006; Jin et al., 2008; Gracia et al., 2015) and online commitment (Elbeltagi & Agag, 2016). The combination of trust and satisfaction is extremely popular in a number of studies (Wang & Head, 2007; Cyr, 2008; Peña-García et al., 2018). However studies examining affective commitment seem to be lacking and present a gap in the literature in terms of understanding emotional attachments (Vesel & Zabkar, 2010). While there is a lack of agreement on the dimensions of relationship quality, relationship satisfaction, trust and commitment are widely considered acceptable in business to consumer studies (Athanasopoulou, 2009).



Relationship quality has tended to be studied as a global construct in both offline (Kumar et al., 1995; De Wulf et al., 2001) and online studies (Yoon et al., 2008). These studies argue examining relationship quality from a composite perspective provides a better assessment of the strength of the relationship. In contrast, Rafiq et al. (2013) examines relationship quality from a disaggregated perspective, focusing on individual dimensions of: trust, satisfaction and commitment. This approach defines the individual effects providing additional detail on the strength of each relationship. This is further reflected in the wider retailing relationship quality literature (De Cannière et al., 2009; Qin et al., 2009). To the researchers knowledge no empirical studies exist examining the individual dimensions of trust, satisfaction and more importantly commitment in an international e-tailing context comparatively.

### **2.3.3 Reciprocity**

Reciprocity emerges from social exchange theory which is based on the assumption of balanced exchanges of social and material resources between partners (Blau, 1964). In a commercial setting exchanges between e-tailers and customers can be based on economic and social exchange (Blau, 1964; Bagozzi, 1995; Sheth & Parvatiyar, 1995a). According to Blau (1964), economic exchange is based on quantifiable items and tends to focus on transactional mechanisms (price and products), whereas social exchange is based on unquantifiable items (advice, positive attitudes, empathy etc.). Several retailing studies incorporate reciprocity through Social Exchange Theory as a theoretical foundation, ranging from examining; customer gratitude (Huang, 2015), customer brand engagement (Hollebeek, 2011) and customer expectations (Antony et al., 2018). While the relevancy of social exchange theory is acknowledged some studies further argue for the distinction

between social exchange and reciprocity (Cropanzano & Mitchell, 2005; Molm, 2010). The study conducted by Molm (2010), argues reciprocal exchange is different to social exchange and proposes ‘...the theory of reciprocity that offers a more nuanced conception of reciprocity as a variable characteristic of exchange’ (Molm 2010: 129).

The concept of reciprocity is based on reciprocal exchange based on positive actions. In a consumer based context, reciprocity is seen as ‘a mutually gratifying pattern of exchanging goods and services’ (Gouldner, 1960). This relates well to interactions between e-tailers and consumers and highlights the exchange relationship between parties further suggesting some form of gratification between the two parties (Palmatier et al., 2009; Huang, 2015). While it has been used across a range of fields it has more recently appeared in business and marketing literature although in a limited capacity. Emerging from a sociological perspective Gouldner (1960:173), discusses the norm of reciprocity and asserts ‘that people should help those who help them and, therefore, those whom you have helped have an obligation to help you’. This relates to rewarding positive behaviours and suggests reciprocity generates a sense of obligation (Kang & Ridgway, 1996). However, the mechanisms underlying reciprocity are varied in the literature and can be based on more positive or negative drivers. Positive motivating drivers can be considered along the lines of gratitude (Emmons & McCullough, 2004; Palmatier et al., 2009; Lee et al., 2014; Huang, 2015) and favours (Sin et al., 2005; Wu et al., 2008). In contrast negative motivating drivers can be associated with obligation and a sense of indebtedness (Gouldner, 1960; Kang & Ridgway, 1996) or guilt (Li & Dant, 1997; Dahl et al., 2005; Yoon et al., 2008). While the motivating drivers of reciprocal exchanges may vary across settings, they all stem from emotional responses from consumers. In an organisational behaviour study Meyer and Allen (1991) further make the distinction of ‘reciprocity by

desire’ and ‘reciprocity by obligation’ suggesting each type of reciprocal exchange is underpinned by a different mechanism. On the one hand ‘reciprocity by desire’ may demonstrate more positive interactions based on a willingness to reciprocate. On the other hand ‘reciprocity by obligation’ suggests more negative interactions where consumers may feel forced into reciprocal exchanges. It is interesting to note Gouldner (1960), discusses reciprocity both in positive (mutually gratifying) and negative (obligation) tones, reflecting the lack of distinction between the underlying motivations for reciprocity.

A number of studies acknowledge the significance of reciprocity within a relationship marketing context (Bagozzi, 1995; Sheth & Parvatiyar, 1995b; De Wulf et al., 2001; Rafiq et al., 2013; Swoboda et al., 2016; Kozlenkova et al., 2017). Relationship marketing is concerned with developing long term relationships and bonds between parties, in this case e-tailers and consumers. The concept of reciprocity in forming these bonds underpins relationship marketing development and seeks to explain relationship development through reciprocal mechanisms (Fournier & Yao, 1997). While the strength of relationships is the core premise of relationship quality theories, reciprocity provides direction on the interaction and development of those relationships. According to Bagozzi (1995), relationship marketing can be based around a variety of different relationships. These include relationships based on; reciprocity, economic or utilitarian exchange, social exchange and social influence. The explicit inclusion of reciprocity in relationship marketing studies in the e-tailing literature is fairly constrained (Verma et al., 2016). The general consensus of a limited number of studies based in a retailing context is that reciprocal exchanges are a strong mechanism for developing consumer and retailer

relationships (De Wulf et al., 2001; Yoon et al., 2008; Rafiq et al., 2013; Swoboda et al., 2013; Swoboda et al., 2016).

The mechanism of reciprocity is based on positive actions of one party which are rewarded by actions of another party. The assumption of heteromorphic reciprocity where the exchange items may be different but are of similar value is of importance with consumer-retailer relationships. Further support to this contention is given by studies, which suggest reciprocal actions should be proportional and balanced in consumer – firm relationships (Bagozzi, 1995; Fournier & Yao, 1997; Wu et al., 2008). In a supplier – firm context, Hoppner et al., (2015) extend this argument and examine equivalence reciprocity (equal reciprocal exchanges) across countries. In a more recent study Kozlenkova et al. (2017) assert the importance of reciprocal relationships in online relationship building and further demonstrate multiplier effects generated through reciprocation, based on bilateral and unilateral reciprocal exchanges. In a study consisting of eight hundred Chinese online shoppers, empirical evidence is provided signifying seller sales can be up to three times more through reciprocal relationships compared to unilateral relationships (Kozlenkova et al., 2017). A number of researchers have additionally identified the importance of reciprocity in terms of developing longer term, more robust relationships (De Wulf et al., 2001; Sin et al., 2005; Palmatier et al., 2009; Ballantyne et al., 2011; Swoboda et al., 2016).

The mechanisms of reciprocal relationships in B2C environments have been examined to a lesser extent (with attention historically given to B2B environments), which provides greater opportunities to understand online loyalty formation through this underutilised theoretical lens. Within an e-tailing context reciprocity has been studied in the context of single country frameworks (Yoon et al., 2008; Rafiq et al., 2013; Swoboda et al., 2016).

Studies generally found positive reciprocal relationships in retailing environments with some suggesting varying effects on loyalty. This is additionally supported in other offline retailing studies (Wu et al., 2008; Swoboda et al., 2013). In an international context reciprocity has been examined within a cultural framework suggesting mechanisms vary across cultures (Gouldner, 1960; Chen & Chen, 2004; Sin et al., 2005; Wu et al., 2008; Nguyen et al., 2014). Some studies argue reciprocity is embedded in Chinese culture and affects social relationships through concepts of ‘Guanxi’ - gift giving and ‘Renqin’ - debt of gratitude, (Chen & Chen, 2004; Wu et al., 2008; Nguyen et al., 2014). Some studies further argue reciprocity may be more value oriented in cultures based in scarcity (Capelli et al., 2010; Ballantyne et al., 2011; Nguyen et al., 2014). In contrast, reciprocity has tended to be examined via more economic rather than social factors in the UK and US. A number of studies based on UK and US consumers examine reciprocity and loyalty through the use of loyalty schemes (Beck et al., 2015; Stathopoulou & Balabanis, 2016; Reinartz & Linzbach, 2018). Additionally, some authors suggest attitudes towards reciprocity will vary along cultural dimensions of individualism and collectivism (Hoppner et al., 2015). Collectivist cultures (China and India) may be more readily prepared to form reciprocal relationships due to greater embedded social ties compared to individualistic cultures (UK and US), (Nguyen et al., 2014). To the researcher’s knowledge no multi-country studies have examined reciprocity in an e-tailing context and studies that do exist focus on either a single country approach (Yoon et al., 2008; Rafiq et al., 2013; Swoboda et al., 2016) or are based offline (De Wulf et al., 2001; Swoboda et al., 2013; Hoppner et al., 2015), thus highlighting a gap in the online loyalty research stream.

## **2.4 Individual Dimensions**

### **2.4.1 Ongoing Online Trust**

Morgan and Hunt (1994:23) define trust as ‘...existing when one party has confidence in an exchange partner’s reliability and integrity’. Although a widely used definition in a relationship marketing context, the focus is on supplier rather than consumer relationships. In Corritore et al. (2003:740) the authors define online trust as ‘... an attitude of confident expectation in an online situation of risk that one’s vulnerabilities will not be exploited’. This is a more robust definition as it incorporates positive aspects of creating trust in terms of developing ‘confidence’ through expectations (Koller, 1988; Luhmann, 2000; Beldad et al., 2010) while mitigating against the more negative aspects of shopping online in terms of ‘vulnerabilities’ (Doney et al., 1998; Garbarino & Strahilevitz, 2004).

One of the issues that has been highlighted by a number of authors is the inherent risk perceived by many consumers when shopping online (Casaló et al., 2007; Brun et al., 2014). Compared to offline environments, difficulties arise for consumers to make judgements based on a lack of physical cues, leading to greater uncertainty and risks, potentially creating barriers to online shopping (Lee & Turban, 2001; Eastlick & Lotz, 2011). Common issues that pose potential risks to consumers include; consumer unfamiliarity with the website, no physical presence and the reliance on a virtual store, functional aspects of shopping online (payment methods, privacy, security, and delivery) and consumer attitudes and risk perceptions towards shopping online (Bart et al., 2005; Mukherjee & Nath, 2007; Angriawan & Thakur, 2008). A number of studies argue prior experience of shopping online and familiarity with the e-tailer, could affect consumers’

willingness to trust, mitigating risks and increasing loyalty (Bart et al., 2005; Ahrholdt, 2011; Chiu et al., 2012; Metilda, 2016).

A significant proportion of the literature examining online trust relates to initial trust, where attention is drawn to consumer unfamiliarity with e-tailers. In this context online trust is centred on initial interactions with the e-tailer (McKnight et al., 2002; Koufaris & Hampton-Sosa, 2004; McKnight & Choudhury, 2006; Eastlick & Lotz, 2011; Kim et al., 2017). However, the long term returning behaviour of consumers is not taken into account and hence ongoing trust shows greater relevance to online loyalty. According to Lee and Choi (2011), ongoing e-trust is based on positive beliefs about reliability and integrity that result over time from observing actual interactions. Unlike initial online trust consumers will form opinions about the trustworthiness of an e-tailer and will develop online trust according to the interactions they have with the online retailer (Kim et al., 2010; Fang et al., 2014). Generally, the more positive the interaction the higher the level of online trust with the retailer (Flavián & Guinalú 2006; Chiu et al., 2012).

Many studies find a positive relationship between trust and loyalty which is further reflected in the online environment (Gefen, 2002; Jin et al., 2008; Cyr, 2008; Kim et al., 2009; Frassetto et al., 2017). If consumers have high levels of ongoing online trust with an e-tailer they are more likely return and engage further in interactions with the e-tailer (Flavián & Guinalú, 2006; Mukherjee & Nath, 2007; Chiu et al., 2012). For example, consumers may find products cheaper on the internet but due to higher perceived risks associated with using unfamiliar e-tailers, they may be willing to pay extra at e-tailer sites they are familiar with indicating higher levels of trust and hence loyalty. A limited number of studies have examined this relationship across cultures and sectors. On the one hand some studies find a direct positive relationship between online trust and online

loyalty that is not influenced by national culture (Cyr, 2008, Jin et al. 2008). While on the other hand some studies find the relationship between online trust and online loyalty is affected by national culture (Peña-García et al., 2018). This relationship is further disputed in other studies which contend online trust does not have a significant direct impact on online loyalty (Rafiq et al., 2013; Chen et al., 2015). In a study examining UK consumers in the online grocery sector, Rafiq et al. (2013) contend trust has an indirect effect on loyalty through relationship satisfaction. Additional studies further contend two mechanisms of online loyalty formation exist. Where (i) trust has a direct effect on loyalty and simultaneously (ii) trust has an indirect on loyalty through satisfaction (Singh & Sirdeshmukh, 2000; Kim et al., 2009). This suggests both full and partial mediating effects exist simultaneously. The trust→loyalty link is under-researched across a wide range of countries and sectors and presents an opportunity for further examination.

Online trust tends to be examined from two opposing contextual positions. One of the more popular positioning is based on website performance and functionality (Yoon, 2009; Ganguly et al., 2010; Cyr, 2013). Online trust in this context is seen to arise when the website performs well and reduces risks associated with the use of the technology and its operations (Bart et al., 2005; Mukherjee & Nath, 2007; Eastlick & Lotz, 2011). According to Lee and Turban (2001) website online trust is based on website performance measures. These authors claim online trust is determined through measures such as; speed, reliability, availability, navigability, order fulfilment, and customization by the customer. A broader perspective has been adopted by Bart et al. (2005), which further includes; privacy, security, and absence of errors across a range of different sectors including e-tailing. From an opposing position online trust is examined from a psychological perspective. Examining organisation based trust antecedents draws attention to trust the



consumer has in the relationship with the e-tailer rather than in the website. In an international study Gefen and Heart (2006), examine the role of familiarity on trusting beliefs, specifically focusing on ability, integrity and benevolence. The authors contend familiarity will affect predictability and hence trust beliefs. If consumers are familiar with an e-tailer based on previous interactions they will be able to predict future outcomes and so form greater trusting beliefs towards the e-tailer. Other psychological trust forming antecedents include retailer investments (Wang & Head, 2007; Rafiq et al., 2013) , firm and perceived reputation (Jin et al., 2008) and ethics perceptions (Elbeltagi & Agag, 2016).

Alongside the discussion of trust the concept of distrust has appeared in the online loyalty research stream. While these two terms have traditionally thought of being the inverse of each other a growing number of studies draw a distinction between the two concepts (Lewicki et al., 1998; McKnight et al., 2004; Cho, 2006; Benamati et al., 2006; Chang & Fang, 2013; Chau et al., 2013). In a study exploring trust and distrust, McKnight et al. (2004:40) conceptualise distrust according to emotional feelings where ‘...distrust is accompanied by feelings of worry, fear, or concern, in contrast to the secure feelings that accompany trust’. Negative aspects of distrust are reinforced by Chang et al. (2013), who argue online trust affects low risk internet behaviour more (e.g. bookmarking a site) whereas online distrust affects high risk internet behaviour more (e.g. purchasing online). Given the strong negative emotions associated with distrust, consumers who show distrust towards a website may more vehemently avoid interactions.

#### **2.4.2 Online Relationship Satisfaction**

Examining the wider literature a number of studies confirm the positive effect of satisfaction on online loyalty, reflecting similar findings emerging from the offline loyalty

literature (Szymanski & Hise, 2000; Wolfinbarger & Gilly, 2002; Zeithaml et al., 2002; Chen et al., 2015; Ghazali et al., 2016). According to Anderson and Srinivasan (2003:125), online satisfaction is defined as ‘... the contentment of the customer with respect to his or her prior purchasing experience with a given electronic commerce firm’. Similarly to online relationship satisfaction it is based on cumulative experiences online. Relationship satisfaction more specifically has commonly been examined as an antecedent to online loyalty signalling a transition from transaction based satisfaction to relationship based satisfaction (Jones et al., 2000; Jin et al., 2008; Verma et al., 2016).

Whilst transactional based satisfaction is based on shorter term individual encounters, relationship based satisfaction has a longer term focus and tends to be based on multiple interactions with a retailer (Crosby et al., 1990; Garbarino & Johnson, 1999). The more satisfied consumers are in the overall relationship, the more likely higher levels of loyalty will be shown towards that retailer (Crosby et al., 1990; Selnes, 1998; Shankar et al., 2003). Given its long term focus and close theoretical alignment to relationship marketing it is often examined in online loyalty studies (Gracia et al., 2015; Ghazali et al., 2016; Kumar et al., 2017). In a recent meta-analysis of relationship marketing in online retailing, Verma et al. (2016) in line with Palmatier’s et al. (2006) framework, identifies relationship satisfaction as a common mediator across a number of online loyalty studies. Furthermore, the study conducted by Verma et al. (2016), highlights twenty-eight instances of causal relationships utilising relationship satisfaction indicating its importance in the online loyalty literature.

Although online satisfaction has been shown to generally have a positive effect on online loyalty there is debate in the literature on the strength of this effect and the predictive power of online satisfaction on online loyalty. Some studies argue the relationship

between online satisfaction and online loyalty is weak (Balabanis et al., 2006) or variable (Anderson & Srinivasan, 2003). In contrast other studies argue the relationship is strong (Evanschitzky et al., 2006; Christodoulides & Michaelidou, 2010; Gracia et al., 2015). The issue of strength could be related to context where weak relationships have been suggested to be more prevalent in utilitarian based studies and stronger relationships in more hedonic sectors (Balabanis et al., 2006; Yoo et al., 2010; Christodoulides & Michaelidou, 2010; Chiu et al., 2012).

While e-tailers have predominantly focused on delivering improved levels of online satisfaction and so online loyalty (Szymanski & Hise, 2000; Anderson & Srinivasan, 2003; Verma et al., 2016), the relationship between online satisfaction and online loyalty is not always necessarily linear (Anderson et al., 2000; Wu. & Ding, 2007). For example, price sensitive customers may be extremely satisfied with the relationship but could easily switch to competitors if products are significantly cheaper (Viard, 2007). Although it is important to acknowledge some sectors may not show positive linear relationships between online satisfaction and online loyalty the majority of online loyalty studies focus on sectors where linearity exists (Yang et al., 2004).

As expected relationship satisfaction in the online environment is often examined through intangible elements (Shankar et al., 2003; Ghazali et al., 2016; Nisar & Prabhakar, 2017). In a study examining the influence of perceived quality on consumer satisfaction levels, (Cristobal et al., 2007) identify key antecedents of online satisfaction through perceived service quality factors of; web design, customer service, assurance and order management. Other studies have focussed on antecedents of interactivity (Yoo et al., 2010), flow (Chang & Zhu, 2012; Hsu et al., 2013) and e-service quality (Janda et al., 2002; Wolfinbarger & Gilly, 2002; Gounaris et al., 2010). While a number of online

satisfaction studies examine performance based antecedents - website design, security, convenience, (Gommans et al., 2001; Evanschitzky et al., 2004; Cristobal et al., 2007), limited attention has been paid to perceptual based antecedents including relationship investment. Although, a limited number of studies examine the relationship between e-tailer investments and online satisfaction (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013), these are single country single sector studies.

A number of retailing studies incorporate expectation-disconfirmation theory as a theoretical foundation in the discussion surrounding satisfaction, e-service quality and loyalty (Wallace et al., 2004; Flavián et al., 2006; Liao et al., 2011; Elkhani & Bakri, 2012; Mwencha & Muathe, 2015; Cho, 2017). Expectation-disconfirmation theory (EDT) posits satisfaction is a function of initial expectations and expectancy disconfirmation. This suggests initial expectations either based on perceptions of service quality online (e-service quality) or through offline service quality cues affects overall satisfaction with the retailer (Oliver, 1980; Selnes, 1998; Montoya-Weiss et al., 2003; Wallace et al., 2004; Flavián et al., 2006). If consumers have positive expectations of service quality whether online or offline they are more likely to be satisfied in the relationship (Montoya-Weiss et al., 2003; Lankton & Wilson, 2007; Kim et al., 2009).

### **2.4.3 Online Affective Commitment**

The role of commitment has been examined to a lesser extent in the online loyalty literature with a greater emphasis generally placed on the role of online satisfaction and trust (Toufaily et al., 2013; Verma et al., 2016). Emerging from the organisational behaviour research stream, the relationship between commitment and loyalty has recently received growing attention in the online loyalty e-tailing literature (Allen & Meyer, 1990;

Fullerton, 2005; Rafiq et al., 2013; Elbeltagi & Agag, 2016). Studies examining commitment are predominantly based in an offline context with a limited focus online. Additionally studies examining commitment in a retailing environment are even less with a greater focus seen in studies based on; services (Johnson et al., 2001; Walsh et al., 2010), transit services – airlines (Zins, 2001; Evanschitzky et al., 2006), telecoms (Fullerton, 2005; Gustafsson et al., 2005) and finance (Casaló et al., 2008a; Sanchez-Franco, 2009; Boateng & Narteh, 2016). This presents an opportunity to examine commitment in an online retailing context addressing diverse challenges in a virtual environment.

Commitment can be categorized into three types; affective, normative and calculative commitment (Allen & Meyer, 1990; Meyer et al., 2012). Calculative (continuance) commitment is based on evaluation of the costs of leaving the relationship in relation to the investments already made and the available alternatives to consumers (Bansal et al., 2004). In an online context, consumers will be committed in continuing the relationship if switching to another e-tailer involves higher switching costs (time, money, convenience) or there is a limited number of other e-tailers to switch to (Chen & Hitt, 2002). Commitment in this context has tended to be examined in relation to loyalty schemes, where consumer commitment is based on economic incentives and sanctions (Evanschitzky et al., 2004; Fullerton, 2011). In contrast, normative commitment relates to the moral obligation and duty of the consumer in wanting to stay in the relationship (Meyer et al., 2002). This type of commitment focuses on social constraints either formal or informal of staying committed in the relationship. Whilst this type of commitment may be relevant in a number of settings (business to business, supplier, government relationships), its relevance in the online consumer retailing environment is limited owing to the way social expectations function differently in the online context (Fullerton, 2005).

As consumers have greater anonymity shopping online they are less likely to be affected by normative commitment.

Reciprocity is closely aligned with the concept of commitment. Meyer and Allen (1991) draw attention to parallels between ‘reciprocity by desire’ and ‘reciprocity by obligation’ to both affective and normative commitment. They contend ‘reciprocity by desire’ is associated with affective commitment, given both mechanisms revolve around a positive willingness to engage in the relationship. Whereas, ‘reciprocity’ by obligation is related to normative commitment which suggests a negative motivation based on constraint.

A number of studies assert affective commitment is positively related to loyalty due to the emotional attachment of the consumer to the organisation and a willingness to continue the relationship (Allen & Meyer, 1990; Morgan & Hunt, 1994; Garbarino & Johnson, 1999; Evanschitzky et al., 2006; Meyer et al., 2012). This is further reflected in the retailing environment where consumers who exhibit higher levels of affective commitment tend to demonstrate higher levels of loyalty towards that retailer (Hennig-Thurau et al., 2002; Fullerton, 2005; Rafiq et al., 2013). Furthermore, some studies have argued affective commitment can have a stronger impact on loyalty than calculative commitment (Fullerton, 2005; Evanschitzky et al., 2006). Evanschitzky et al. (2006), argue loyalty based on emotional bonds (affective commitment) can be more enduring than loyalty based on economic incentives (calculative commitment). This is primarily driven by the concept of ‘free choice’ – not being tied to a service provider and a greater emotional attachment based on positive attitudes. This is supported by Fullerton (2005), in the retail grocery sector who additionally argues continuance commitment erodes affective commitment. If customers feel tied to a retailer through economic sanctions, this may weaken the effect on customer retention and produce negative word-of-mouth. In

contrast, Vesel and Zabkar (2010) argue both calculative and affective commitment should be examined as dimensions of relationship quality in a retailing environment as opposed to just affective commitment. However, given this study examined a specific loyalty program for DIY retailers, the role of calculative commitment would show a stronger presence and re-enforce the close association of calculative commitment with loyalty schemes.

In a retailing context, commitment has tended to be conceptualised through affective commitment (rather than calculative and normative), focusing on developing emotional attachments (De Wulf et al., 2001; Hennig-Thurau et al., 2002; Mukherjee & Nath, 2007; De Cannière et al., 2009; Qin et al., 2009; Rafiq et al., 2013; Elbeltagi & Agag, 2016). However, while most studies examine commitment in an offline retailing context, fewer investigate affective commitment online. Some notable exceptions are those of Rafiq et al. (2013) which focuses on the UK grocery e-tailing sector, Mukherjee and Nath (2007) who examine the trust-commitment link in the UK e-tailing sector and Elbeltagi and Agag (2016) who similarly examine the trust-commitment relationship of online shoppers in Egypt. To the researcher's knowledge there are no studies examining affective commitment in an e-tailing setting across countries. This provides an opportunity to examine affective commitment online and its effect on online loyalty from an international perspective.

## **2.5 Interrelationships**

### **2.5.1 Online Trust and Online Satisfaction**

A number of studies have found a very positive relationship between online satisfaction and trust (Gefen, 2002; Jin et al., 2008; Chiu et al., 2012; Rafiq et al., 2013; Giovanis & Athanasopoulou, 2014; Barreda et al., 2015; Malhotra et al., 2017). However, there is debate in the literature as to the directionality of this relationship. Reflecting studies in the offline environment, some authors argue the direction of the relationship flows from online relationship satisfaction to online trust. This signifies consumers that are satisfied in the relationship with e-tailers will tend to be more inclined to trust that e-tailer (Jarvenpaa et al., 2000; Gefen, 2002; Casaló et al., 2007; Chiu et al., 2012; Giovanis & Athanasopoulou, 2014; Barreda et al., 2015).

Conversely, other authors argue the reverse is true, maintaining online trust is a stronger predictor of satisfaction. This line of thought implies consumers who have trust in a retailer will tend to be more satisfied in the relationship with that retailer (Singh & Sirdeshmukh, 2000; Jin et al., 2008; Rafiq et al., 2013; Ziaullah et al., 2014; Malhotra et al., 2017). According to Rafiq et al. (2013), the directionality of the relationship travels from online trust to online relationship satisfaction. It is argued as consumers face more uncertainties shopping online, the creation of online trust and in this case ongoing trust will be of more value in determining online relationship satisfaction. This is additionally supported by studies that maintain trust indirectly effects loyalty through satisfaction and so re-enforcing the directionality from trust to satisfaction (Kim et al., 2009; Rafiq et al., 2013).



### **2.5.2 Online Satisfaction and Online Commitment**

The relationship between satisfaction and commitment is examined to a lesser extent in an e-tailing context, with the predominant focus on satisfaction and trust as discussed previously. Studies in the offline research stream assert a strong relationship between satisfaction and commitment (Garbarino & Johnson, 1999; Gustafsson et al., 2005) which is reflected in the online literature. The limited number of online studies, maintain a positive relationship between online satisfaction and commitment, where emotional bonds of commitment are created and reinforced through higher levels of satisfaction. Thus establishing online satisfaction as a pre-requisite of online commitment (Fullerton, 2011; Ziaullah et al., 2014) This is additionally supported by Park and Kim (2003) in a web related context, who argue satisfaction (based on site quality) positively affects commitment to the website. In contrast Elbeltagi et al., (2016), argue the opposite and assert commitment is a precursor to satisfaction. However, given the theoretical trust→commitment context of the Elbeltagi et al. (2016) study attention is focused on the trust→ commitment link rather than the commitment→satisfaction link. The wider literature further supports the positive relationship and directionality between online satisfaction and commitment across a range of sectors (Nusair & Hua, 2010; Walsh et al., 2010; Balaji, 2015).

Additional studies have examined the trust→commitment link emerging from the work of Morgan and Hunt (1994), and argue trust positively effects commitment directly (Mukherjee & Nath, 2007; Elbeltagi & Agag, 2016). Although not as widespread in the online loyalty literature, these studies support the view if consumers have higher levels of trust with an e-tailer they are more likely to form emotional attachments and so have higher levels of commitment.

## **2.6 Moderating Influences**

To understand online loyalty formation further a limited number of studies examine boundary conditions through moderating influences. This provides further insight into online loyalty formation through external moderators which can influence relationships. Following an extensive review of studies in the international e-tailing realm focusing on online loyalty consumer cosmopolitanism has only been included in one study (Wagner et al., 2016) which is surprising given its emerging popularity in the international marketing research stream. Although cosmopolitan consumers are seen as open-minded and more receptive to foreign products their relationship with online loyalty formation has not been widely explored. Product category involvement has been included to a greater extent as a moderator in this area, although Frassetto et al. (2017) examine the moderating influence of hedonic orientation and product involvement as control variables. Product category involvement has however been included as a moderating factor in the wider loyalty literature (De Wulf et al., 2001; Olsen, 2007; Swoboda et al., 2009; Dagger & David, 2012). National culture appears in a number of studies and is most commonly employed as a moderator examining cultural dimensions through Hofstede's aggregate national framework (Hofstede, 2001; Pavlou & Chai, 2002; Ganguly et al., 2010; Gracia et al., 2015; Frassetto et al., 2017).

A number of studies have advocated the inclusion of more individual level frameworks to examine culture to address issues with aggregate national level frameworks including Hofstede's dimensions of culture (Cannon & Yaprak, 2002; Srite & Karahanna, 2006; Cleveland, Erdoğan et al., 2011). The number of studies examining culture from both an individual level (consumer cosmopolitanism) and aggregate level (national culture)

perspective are extremely limited with the latter approach generally favoured in the online loyalty research stream (Lim & Park, 2013).

### **2.6.1 Consumer Cosmopolitanism**

Recent studies have advocated the measuring of an individuals' cultural values by personality tests rather than the macro level criteria of national culture as identified by Hofstede (Triandis, 1989; Cannon & Yaprak, 2002; Srite & Karahanna, 2006; Cleveland, Erdoğan et al., 2011; Riefler et al., 2012). A number of studies have challenged the assumption of national cultural homogeneity and in response have argued for the need to explore alternative frameworks (Helsen et al., 1993; Schwartz, 1994; Cleveland et al., 2011).

An increasing number of studies have advocated the use of consumers' degree of cosmopolitan orientation as a method to evaluate consumers globally rather than on country characteristics. As consumers become global citizens, through globalization, national characteristics diminish and developing measures of global consumers' needs further investigation (Steenkamp, 2001; Cannon & Yaprak, 2002; Cleveland et al., 2011; Riefler et al., 2012; Han & Won, 2018). The growth of e-commerce and its ability to transcend national boundaries make it an ideal sector to investigate the global consumer in more depth through the conceptualisation of 'consumer cosmopolitanism'. The idea of the cosmopolitan consumer has a number of diverse explanations but for the purpose of this study is defined as: 'an open-minded individual whose consumption orientation transcends any particular culture, locality or community and who appreciates diversity including trying new products and services from a variety of countries' (Riefler & Diamantopoulos, 2009:415). Cosmopolitan consumers are seen as curious, positive

thinkers with an adventurous nature given their openness to other cultures (Yoon et al., 1996; Holt, 1997). According to Riefler et al. (2012) cosmopolitan consumers are additionally found to exhibit characteristics of; consumer innovativeness (willingness to try new products and service), less risk aversion given their inclination to travel and explore the world and less consumer SNI (consumer susceptibility to interpersonal influence). The last profile characteristic (consumer SNI) indicates purchasing decisions are made independently and not in relation to the expectations of others (Bearden et al., 1989).

Research indicates cosmopolitan consumers due to their openness to other cultures and appreciation of diversity are more receptive to foreign products and services and hence are more likely to show positive purchase intentions and a greater willingness to buy foreign products and services (Cleveland et al., 2009; Cleveland et al., 2011; Riefler et al., 2012; Rosenbloom et al., 2012; Lim & Park, 2013; Zeugner-Roth et al., 2015; Lee. & Mazodier, 2015; Wagner et al., 2016; Dogan & Yaprak, 2017; Laroche et al., 2018). Consumer cosmopolitanism is not examined widely in the online loyalty and e-tailing literature which is surprising given the steady growth of the consumer cosmopolitan segment (Riefler & Diamantopoulos, 2009; Cleveland et al., 2011; Grinstein & Wathieu, 2012). Consumer cosmopolitanism is examined in a single retailing study based in India regarding store loyalty (Pandey et al., 2015). The study by Pandey et al. (2015) argues culture and price have an impact on offline store loyalty with no effect of cosmopolitanism. However, different results are expected due to differences between online and offline drivers of loyalty.

In a study investigating effects of French sponsorship among UK consumers, Lee and Mazodier (2015), find cosmopolitanism enhances brand affect but not brand trust. The

only study found to examine moderating effects of consumer cosmopolitanism focuses on cross-border online shopping (Wagner et al., 2016). Although cosmopolitanism is found to moderate the relationship between perceived benefits and online purchase behaviours, results are not stable given the small sample size (N=220).

In the wider literature studies have examined consumer cosmopolitanism in the international marketing research stream alongside the impact of ethnocentrism (Cleveland et al., 2009; Zeugner-Roth et al., 2015; Dogan & Yaprak, 2017; Han & Won, 2018) and brand origin (Balabanis & Diamantopoulos, 2008; Laroche et al., 2018). Ethnocentrism has tended to be studied as a polar opposite to cosmopolitanism where consumers who are more ethnocentric demonstrate a preference for local rather than foreign products (Shimp & Sharma, 1987). However, these studies have tended to focus on consumer acceptance and willingness and/or reluctance to purchase global products rather than on repeat purchase intention. (Caldwell et al., 2006; Cleveland et al., 2009; Zeugner-Roth et al., 2015).

Brand origin has been examined alongside cosmopolitanism (Laroche et al., 2018). Although closely related to the country-of-origin (COO) effect which appears more widely in the literature a growing consensus distinguishes between the two concepts (Thakor & Lavack, 2003; Pharr, 2005; Jin et al., 2006; Laroche et al., 2018). Brand origin is based on consumer perceptions of the specific location of a brand through corporate headquarters (Johansson et al., 1985). The country-of-origin effect is based on consumer perceptions of countries where products have thought to originate from. Given product manufacturing may span several countries the country-of-origin effect may become diluted and brand origin may be more relevant to consumers (Thakor, 1996). While there is debate on the necessity to distinguish between brand origin and country-

of-origin effect, both convey country origins which have been shown to influence consumer perceptions towards product selection and purchase (Verlegh & Steenkamp, 1999; Balabanis & Diamantopoulos, 2008; Godey et al., 2012; Batra et al., 2014; Laroche et al., 2018). Examination of cosmopolitanism on brand origin by Laroche et al. (2018) found the more cosmopolitan an individual is the higher the levels of brand origin recognition which result in more favourable brand attitudes. Within the wider literature a close relationship is found between brand attachment and country-of-origin effect (Verlegh & Steenkamp, 1999; Burnham et al., 2003; Kinra, 2006; Bhardwaj et al., 2010; Godey et al., 2012). Attitudes to global brands may vary according to brand origin and country-of-origin effect. For example brands from the West may be perceived as higher quality and more desirable than local brands in China and India (Bhat & Reddy, 1998; Bhardwaj et al., 2010; Godey et al., 2012). Although growing evidence suggests this is increasingly more applicable to luxury brands particularly in China (Deloitte, 2016).

### **2.6.2 Product Category Involvement**

Research indicates a range of involvement constructs are examined in the online loyalty literature including; enduring and situational involvement (Huang 2006; Im & Ha, 2011; Hong, 2015), website involvement (Koufaris, 2002; Jiang et al., 2010; Akhter, 2014) and product category involvement (Wallace et al., 2004; Wang et al., 2006; Jones & Kim, 2010; Frasquet et al., 2017). Enduring involvement is based on intrinsic motivations and hedonic factors including enjoyment and self-relevance whereas situational involvement is based on extrinsic motivations and tends to be more situation specific (Bloch & Richins, 1983; Higie & Feick, 1989; Michaelidou & Dibb, 2006; Huang, 2006). Enduring involvement is found to be positively related to loyalty given its long term focus and

stability over time (Huang, 2006; Im & Ha, 2011). Within an online context Huang (2006) argues enduring involvement from a hedonic perspective is based on enjoyment using the website. In contrast situational involvement revolves around a specific situation and task completion and relates functional aspects including website navigation. Website involvement increasingly appears in a number of online studies (Koufaris, 2002; Jones & Kim, 2010; Hong, 2015; Shobeiri et al., 2018). Attention is paid to affective and cognitive involvement where utilitarian and emotional responses to web sites are examined (Koufaris, 2002; Jiang et al., 2010). Affective involvement is based on emotional and hedonic elements on the website (e.g. enjoyment) and cognitive involvement on functional and utilitarian elements (e.g. website tools). The study conducted by Koufaris (2002) argues both utilitarian and emotional responses to websites can impact online loyalty. This is additionally supported by Jiang et al. (2010) who contends higher website involvement is positively associated with higher purchase intention.

The categorisation of hedonic and utilitarian products is commonly employed in the e-tailing literature. Utilitarian products rely on consumer decisions based on rational and functional appeals (Hirschman & Holbrook, 1982; Park & Kim, 2003). In contrast hedonic product choice emerges from emotional and pleasure seeking motivations (Park & Kim, 2003; Michaelidou & Dibb, 2006; Jones & Kim, 2010). In a study examining the role of product category characteristics, Kushwaha and Shankar (2013), classify product sectors based on utilitarian and hedonic product category characteristics alongside high and low risk contexts. The clothing sector is identified as hedonic and associated with lower perceived risk. This implies consumers tend to base decisions on emotional appeals and consider the perceived risk of purchasing clothing lower. A range of product sectors

that can be considered more electronic and electrical based (electronics, computing, telecommunications equipment and photography and video) is identified as utilitarian and associated with higher risk. Consumer decisions involving the purchase of electrical products tend to be more utilitarian based involving rational and efficiency appeals (Hirschman & Holbrook, 1982; Babin et al., 1994; Park & Kim, 2003; Kushwaha & Shankar, 2013; Mallapragada et al., 2016). Furthermore, Kushwaha and Shankar, (2003) assert a higher functional risk is associated with more complex and technical product types.

In line with Mittal (1995), product category involvement focuses on interest, importance and meaning of product categories to individuals. Rather than classifying high and low levels of involvement based on product categories as demonstrated by previous studies, the focus shifts to the relevancy of the product category to the consumer (Hirschman & Holbrook, 1982; Zaichkowsky, 1985; Mittal, 1995; Park & Kim, 2003). In a retailing study De Wulf et al., (2001:37) define product category involvement as ‘...a consumer's enduring perceptions of the importance of the product category based on the consumer's inherent needs, values, and interests.’ Studies have suggested the more highly involved consumers are in the product category, the more loyal they will tend to be (De Wulf et al., 2001; Olsen, 2007; Swoboda et al., 2009; Jones & Kim, 2010; Dagger & David, 2012).

Emerging from a relationship marketing perspective Gordon et al. (1998) argue higher levels of product category involvement positively affect relationship marketing tactics including; continuity (in the relationship), individualisation (customised offers) and personalisation (focus on personal relationship). These tactics in return are more likely to increase purchase likelihood. In a similar vein Odekerken-Schröder et al. (2003) assert higher levels of product category involvement intrinsically affect a customer's proneness



to engage in a relationship. This further positively affects commitment in the relationship and ultimately buying behaviour.

The role and application of product category involvement varies across online and loyalty studies. It appears as an antecedent (Lian & Lin, 2008; Jones & Kim, 2010), a mediator (Wang et al., 2006; Gutiérrez et al., 2010), a control variable (Wallace et al., 2004; Balabanis et al., 2006; Frasquet et al., 2017) and less frequently as a moderating influence (De Wulf et al., 2001; Swoboda et al., 2009; Jiang et al., 2010; Dagger & David, 2012). In an offline retailing study examining food and apparel sectors, De Wulf et al. (2001) assert higher levels of product category involvement strengthen the relationship between retailer investments and relationship quality (ultimately leading to behavioural loyalty). This suggests more involved consumers may appreciate retailer investments more strongly given their investment in the relationship. The moderating influence of product category involvement is examined on the relationship between retailer efforts and a single aggregate construct of relationship quality. The moderating influence of product category involvement on the individual dimensions of relationship quality (trust, satisfaction and commitment) to the researcher's knowledge is not available in the literature. Opportunities therefore exist to examine the moderating effect of involvement in an online setting and on the magnitude of effects of each individual dimension of relationship quality.

While a limited number of studies have examined these determinants individually scarce empirical evidence exists on their comparative effect. A number of studies have examined the effect of product category involvement alongside satisfaction and loyalty with mixed results. On the one hand studies contend higher levels of product category involvement generally positively affect satisfaction and so loyalty (Wallace et al., 2004;

Dagger & David, 2012). The study by Wallace et al. (2004) contend more involved customers are more likely to have expectations based on previous interactions positively disconfirmed. In support Dagger and David (2012), argue more involved customers will be more influenced by satisfaction given their greater interest in the product category. However, on the other hand studies contend product category involvement weakens the satisfaction-loyalty link (Homburg & Giering, 2001; Balabanis et al., 2006). However it should be noted Homburg and Gierieng (2011) examine satisfaction in the sales process and Balabanis et al. (2006) examine satisfaction in the website alongside switching barriers, results may not therefore be comparable to satisfaction in the relationship.

Research extending to product category involvement and trust tends to include risk. In a study examining situational involvement Hong et al. (2015) finds higher levels of situational involvement positively affects performance risk which it turn positively affects trust expectation and ultimately intention to buy from an e-tailer. Additionally perceived risk (including financial risk) is generally higher for online products and services where there are higher levels of product category involvement (Pires et al., 2004; Bart et al., 2005). The importance of commitment and particularly affective commitment to loyalty has been advocated in a number of studies (Fullerton, 2005; Evanschitzky et al., 2006; Rafiq et al., 2013). However, the role of product involvement with commitment appears less in the research stream. The study conducted by Chaudhuri (1998) examines product class in terms of necessities and luxuries and contends positive emotional experiences with products reduce levels of perceived risk.

In contrast, some studies argue consumers may not always seek stronger and longer term relationships and drivers of relationship marketing could generate more negative customer reactions in specific situations (Colgate & Danaher, 2000; Cao & Gruca, 2005;

Palmatier et al., 2008). In an industrial buyer-salesperson context, Palmatier et al. (2008:175), establish the importance of relationship orientation and contend buyers '...evaluate relational value in a given exchange context'. Therefore, buyers will value investments more in situations where added value can be clearly identified in the exchange process. More explicitly, results from this study demonstrate buyers with low levels of relationship orientation (less reliance on strong relational governance structures) perceive exchanges as more inefficient with higher levels of relationship investments. Exchange inefficiency is therefore highlighted as an issue as it negatively impacts relationship investments by eroding buyer trust. Essentially buyers will value relationship investments positively where there are higher levels of relationship orientation and hence greater value gains within an exchange process. Conversely, buyers are less likely to value relationship investments where there are lower levels of relationship orientation as value gains are less significant in an exchange process. While this study offers a B2B perspective it does not examine negative impacts of relationship marketing in an B2C context and does not address issues of product category involvement. Although some studies have called for more research into the negative effects of relationship marketing (Morgan & Hunt, 1994), these are extremely limited with the vast majority focusing on the positive effects of relationship investments and relationship marketing efforts. To the researcher's knowledge no studies have examined the negative effects of relationship investments in relation to product category involvement.

### **2.6.3 National Culture**

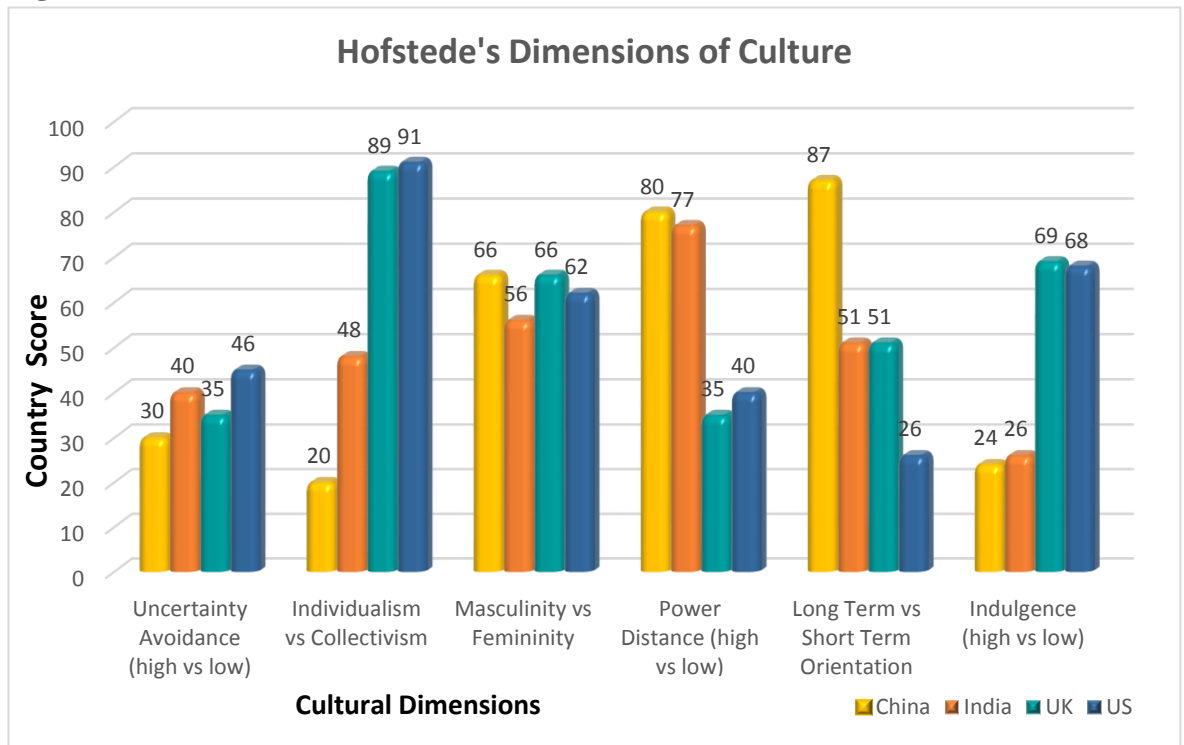
Hofstede's dimensions of culture is one of the most influential and widely used frameworks to examine culture across a range of multi-country studies (Cannon & Yaprak, 2002; Kirkman et al., 2006; De Mooij, 2015; Samiee et al., 2015; Beugelsdijk et

al., 2017). Although developed within an organisational behaviour context it has been adopted in a number of international marketing and online retailing studies, highlighting its popularity and acceptance (Søndergaard, 1994; De Wulf et al., 2001; Elbeltagi & Agag, 2016). This framework examines culture according to national and geographic boundaries and uses cultural dimensions as a means to measure and classify culture. Although criticisms of this framework are evident (employee rather than consumer focus, single sample based on IBM employees and the assumptions that culture can be measured at an aggregate national level), it is well aligned with a number of studies that argue nationality (differences between countries) is an acceptable proxy of culture (Steenkamp, 2001; Soares et al., 2007; De Mooij, 2015). Most studies accept the fact that countries may not be fully homogenous but there is strong empirical evidence to show enough variations between countries to make meaningful comparisons of culture at a national aggregate level (Schwartz, 1994; Hall. & Du Gay, 1996; De Mooij & Hofstede, 2002; Kirkman et al., 2006; Minkov & Hofstede, 2012). Within the online loyalty and e-tailing literature additional frameworks have been used. These include; Fukuyama's (1995) dimensions of high and low trust countries, Hall's (1993) dimensions of high and low context countries and the GLOBE values framework (House et al., 2004).

The Hofstede framework consists of six cultural dimensions as shown in Figure 2.1. The framework contains four original dimensions based on high and low levels of uncertainty avoidance, individualism and collectivism, masculinity and femininity and high and low levels of power distance (Hofstede, 1983, 2001), with the later inclusion of long and short term orientation and high and low levels of indulgence (Minkov & Hofstede, 2012). Further explanations of each of the dimensions can be found in Appendix B.

The bi-polar construction of Hofstede's dimensions align well with the examination of moderating effects based on bi-polar characterisations. This could explain why national culture is commonly examined through moderating effects in the international e-tailing literature (Pavlou & Chai, 2002; Yoon et al., 2008; Yoon 2009; Ganguly et al., 2010; Chen et al., 2015; Gracia et al., 2015; Elbeltagi & Agag, 2016; Frasquet et al., 2017).

**Figure 2.1 Hofstede's Dimensions of Culture**



Source: Hofstede Insights (2019)

The six dimensions of Hofstede's framework can be seen in Figure 2.1 with the associated country scores. The US and UK display higher levels of individualism with respective scores of 91 and 89. In contrast China and India show much lower individualism scores (indicating more collectivism behaviour) with scores of 20 and 48 respectively (Hofstede 2001; Hofstede Insights, 2019). Although a range of these dimensions are evident in Hofstede's framework, specific dimensions of individualism

and collectivism are most commonly used in the online loyalty and e-tailing literature (Pavlou & Chai, 2002; Ganguly et al., 2010; Chen et al., 2015; Gracia et al., 2015; Elbeltagi & Agag, 2016; Frassetto et al., 2017).

The online loyalty formation process is likely to differ across national cultures due to inherent cultural differences regarding values, beliefs and behaviours (Gefen & Heart, 2006; Cyr et al., 2008; Jin. et al., 2008; Cyr, 2013; Chen et al., 2015; Gracia et al., 2015). This view aligns well with literature in the general loyalty area where culture has been shown to affect and influence consumers' loyalty forming factors (Doney et al., 1998; Oliver, 1999; Harris & Goode, 2004). Research has shown individualism and collectivism to influence relationship marketing, relationship quality and reciprocity (Samaha et al., 2014; Hoppner et al., 2015). In a meta-regression analysis of over forty-seven thousand relationships across one hundred and seventy studies and thirty-six countries, Samaha et al. (2014) find the magnitude of the effect of individualism is seventy-one per cent greater than other cultural dimensions. The study conducted by Samaha et al. (2014) further argues national culture impacts relationship marketing development and collectivist countries including China and India are more influenced by relationship drivers to improve performance compared to individualistic countries including the UK and US (Samaha et al., 2014). Support is further provided in the wider literature where social ties and long term social bonding are more likely to be valued in collectivist countries (Hofstede, 2001; Kirkman et al., 2006; Hofstede, 2011; Minkov & Hofstede, 2012; Mazaheri et al., 2014). Individualist societies are more individually goal oriented, suggesting relationship development primarily functions as a means to achieving those goals (Triandis, 1989; Hofstede, 2001; Soares et al., 2007). Therefore, individualist societies are more likely to switch between providers based on self-interest and not

necessarily enter into or sustain longer term relationships (Hofstede, 2001; De Mooij & Hofstede, 2002; Hofstede, 2011).

The study by Samaha et al. (2014) is one of the few studies to offer insight into relationship marketing across cultures. However, they do not inherently address issues of reciprocity across cultures and do not examine satisfaction as a relational mediator. In one of the few studies concentrating on culture and reciprocity, Hoppner et al. (2015) contend reciprocal effects are swayed by national culture due to varying cultural norms and behaviours, which affect attitudes towards reciprocity. According to Hoppner et al. (2015), reciprocity can be examined as a multidimensional norm consisting of equivalence reciprocity (equal reciprocal exchanges) and immediacy reciprocity (when reciprocal exchanges happen). The study by Hoppner et al. (2015) argues equivalence reciprocity has a stronger effect on relationship quality in Japan (a more collectivist society), which could be attributable to a greater tendency towards mutually beneficial outcomes. Whereas immediacy reciprocity has a greater effect on relationship quality in the US (a more individualistic society) and is more likely to be related to short-term orientation values held in the US. Although, studies by Samaha et al. (2014) and Hoppner et al. (2015) progress the literature on the impact of culture on relationship marketing and reciprocity they do not provide a holistic view of relationship quality through relational mediators of trust, satisfaction and commitment. More specifically the role of reciprocity in consumer relationships is not explicitly examined within a relationship quality framework in an international context.

The predictive power of online trust on online loyalty through dimensions of collectivism and individualism is mixed. On the one hand studies argue trust will be a stronger predictor of loyalty in collectivist countries due to their emphasis on harmony and social

bonding (Pavlou & Chai, 2002; Gefen, 2002; Peña-García et al., 2018). According to Doney et al. (1988) collectivism is more likely to affect predictive trust formation which is based on consistency and prior actions to inform future trust intentions. Collectivist countries may place greater value on in-group conformity and therefore are more likely to trust, as in-group members are less likely to deviate from acceptable behaviours (Ueno & Sekaran, 1992; Jetten et al., 2006). On the other hand, studies argue no significant differences exist and individualistic and collectivist countries have a similar effect on the trust-loyalty link (Jarvenpaa et al., 1999; Teo & Liu, 2007; Jin et al., 2008; Frasquet et al., 2017). This has been argued to be due to; narrow conceptualisations of trust, culture not accurately reflected through dimensions of individualism and culture or similarities of samples (students used in a high proportion on studies). In addition, Ganguly et al. (2010) find a negative moderating effect of collectivism on the relationship between trust and purchase intention and suggest emphasis on trust formation is stronger in the US and Canada (more individualistic) compared to India (more collectivist).

The role of uncertainty avoidance (UA) additionally appears in a number of international e-tailing studies examining trust given its close association to risk (Jin et al., 2008; Gong, 2009; Yoon, 2009; Karahanna et al., 2013). Uncertainty avoidance refers to the tolerance of consumers' ambiguity and is often related to risk taking factors (Hofstede, 2011). The moderating role of UA is varied in the e-tailing loyalty research stream. In a study conducted by Yoon et al. (2009) moderate effects were identified on the relationship between trust and intention to use. In contrast, Jin (2008) provide no support for any moderating effect of UA. In the wider literature consumers from lower UA countries are generally prepared to take risks and engage in more opportunistic behaviours (Hofstede, 2001). In contrast customers from higher UA countries are more likely to adopt risk



reducing behaviours, seeking reassurance from formalised structures and systems which may influence trust formation more strongly (Doney et al., 1998).

In a similar vein but to a lesser extent, the impact of national culture through dimensions of individualism and collectivism on online satisfaction and loyalty is varied. In a study focusing on Spain and Argentina, Gracia et al. 2015 argue online satisfaction will be a stronger predictor of online loyalty in collectivist countries. This is supported by Jin et al. (2008), Liu & Sheng (2010) and 2010 Peña-García et al. (2018), who argue collectivist countries tend to stay with service providers once satisfied. This supports the wider literature that contends customers from collectivist countries are more unwilling to leave satisfying relationships and value longer term social bonds (Triandis, 1989; Hofstede, 2001). Furthermore Liu et al. (2001) assert collectivist societies may have a greater reluctance to complain in an attempt to maintain harmony and social cohesion. Opposing this view Kassim and Abdullah (2010) find no significant differences between individualistic and collectivist countries on the relationship between satisfaction and loyalty. However, this view is adopted less in the literature.

The number of studies examining the effect of commitment across countries is more negligible in an online international e-tailing setting and hence national culture effects are not extensively examined. The wider literature (particularly from an organisational behavioural perspective) show strong support for collectivist countries demonstrating higher levels of commitment (Randall, 1993; Fischer & Mansell, 2009; Ozdemir & Hewett, 2010; Meyer et al., 2012). Within an offline retailing context Ozdemir & Hewett, (2010) argue as collectivist societies value relationships and social bonding, consumers are more likely to exhibit higher levels of commitment. According to Samaha et al. (2014) collectivist countries have a greater tendency to engage in long term social

bonding and enhance social ties, which could reflect a greater willingness to continue the relationship.

The number of studies examining culture from both an aggregate (national culture) and individual level (consumer cosmopolitanism) are extremely limited with none to the researcher's knowledge appearing in the online loyalty research stream. The one study identified appears in the consumer cosmopolitanism research area and focuses on consumer innovativeness (Lim & Park, 2013). Although the study by Lim and Park (2013) incorporates both national culture and consumer cosmopolitanism it does not examine loyalty.

#### **2.6.4 Conditional Process Analysis**

From a methodological perspective, moderation in the international online loyalty research stream is generally conducted using regression analysis. Most studies offer comparison models with and without interaction effects in accordance with Sharma et al. (1981) and Baron & Kenny (1986). This approach is adopted by Pavlou & Chai (2002), Ganguly et al. (2010) and Yoon (2009) which examine moderating effects of culture based on Hofstede's cultural dimensions. Other studies do not offer any formal moderation discussions but examine country differences through multi-group chi-square difference tests (Jin et al., 2008; Frassetto et al., 2017) and general two-way interactions (Kassim & Abdullah, 2010; Elbeltagi & Agag, 2016). Formal tests of moderated mediation were found even less in the literature with only two notable studies in the wider retailing area from Herhausen et al. (2015) and Riquelme et al. (2016), highlighting a methodological gap examining moderated mediation effects. Additional moderation techniques have been advocated by Hayes (2018), which focus on the concept of conditional process analysis which incorporates mediation and moderation components

simultaneously. To the researcher's knowledge no studies exist in the international online loyalty literature that include conditional process analysis as a methodological technique.

## **2.7 Summary**

The purpose of this chapter was to provide a review of the literature signalling current knowledge and research gaps, based around the main study constructs of ; online loyalty, online ongoing trust, online relationship satisfaction, online affective commitment and online perceived relationship investment. Studies were primarily examined within an international context providing an overview of international online loyalty studies. Furthermore, literature surrounding the interrelationships between the individual dimensions of relationship quality were examined and in particular explored links between; trust and satisfaction alongside satisfaction and commitment. Moderators were examined in relation to online loyalty including; consumer cosmopolitanism, product category involvement and national culture. Methodological approaches towards moderation were additionally identified. Theoretical foundations of relationship marketing, relationship quality and reciprocity were explored providing a basis for the study. This chapter highlights gaps in the relevant literature which are discussed further in Chapter three, contributing to the development of the conceptual model and hypotheses.

## **CHAPTER THREE**

### **3.0 CONCEPTUAL FRAMEWORK**

This chapter presents the conceptual model and hypotheses to address the main research question, including a rationale for their development. The first section provides a summary of the research gaps that have emerged from the literature review in Chapter two, identifying the theoretical areas where this study hopes to make a contribution. This is followed by a discussion examining the proposed model and the theoretical relationships between constructs within the context of addressing the main research question. Furthermore, path relationships are specifically highlighted forming the basis of analysis in Chapter five via structural equation modelling. This is then encapsulated in a visual representation depicting the conceptual model used in this study. The following section states the hypotheses emerging from the conceptual framework with a rationale for their development and ends with a summary of the chapter.

### **3.1 Research Gaps**

Foundations for the theoretical contributions of this study are based on research gaps identified from a review of the literature in Chapter two. Whilst the concept of loyalty in an online context has received growing attention recently, relatively little is still understood concerning the mechanisms of online loyalty formation in an international e-tailing sector (Toufaily et al., 2013). Given the growth of e-tailing internationally, a number of studies have called for further investigations to understand online loyalty formation within an international context (Chen et al., 2015; Gracia et al., 2015). Additionally, studies that currently exist in the international and e-tailing online loyalty research stream tend to be single sector studies. The first research gap therefore is the

limited number of comparative studies examining online loyalty across countries and sectors. To address this gap a multi-country and multi-sector approach is taken allowing comparisons to be made across countries and sectors.

A number of online loyalty studies focus on functional aspects of loyalty development through website characteristics including design, reliability, security, performance and usability (Flavián et al., 2006; Kassim & Abdullah, 2008; Ganguly et al., 2010; Cyr, 2013; Gracia et al., 2015). In comparison, fewer studies examine online loyalty formation through psychological drivers including online relationship investment and relationship based characteristics (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013). While relationship marketing focuses on the development of long term relationships with customers, relationship quality examines the strength of the relationship between consumers and e-tailers (Qin et al., 2009; Vesel & Zabkar, 2010; Verma et al., 2016). However, the mechanisms involved in relationship marketing are still under-explored in an e-tailing context. According to Bagozzi (1995) these mechanisms can be based around reciprocal, economic/utilitarian and social exchanges. Within this context reciprocal relationships have not been examined widely in an online loyalty context with a greater focus generally given to economic and social exchanges in the online loyalty research stream (Koufaris, 2002; Anderson & Srinivasan, 2003; Balabanis et al., 2006; Jin et al., 2008; Tsai & Huang, 2009). The lack of attention given to reciprocity in an e-tailing context is significant given its potential to form stronger relationships through positive reciprocal drivers and hence more loyal customers (De Wulf et al., 2001; Yoon et al., 2008; Rafiq et al., 2013; Swoboda et al., 2016; Kozlenkova et al., 2017). The second research gap therefore is the lack of attention on psychological drivers of online loyalty formation. This includes reciprocal relationships within a relationship marketing context

and the psychological bonds between customers and e-tailers. This study therefore examines the role of online perceived relationship investment as an antecedent to online loyalty through the theoretical underpinnings of relationship marketing, relationship quality and reciprocity.

It is widely recognised through relationship quality, that the stronger the relationship the more loyal consumers tend to be (Gronroos, 2007; Yoon et al., 2008; Park & Kim, 2014). It is generally accepted relationship quality can comprise of individual dimensions of; trust, satisfaction and commitment. However, relationship quality has traditionally been examined as an aggregate construct with limited focus on the strength of individual effects (Izogo, 2016). Where individual dimensions have been examined separately additional issues regarding interrelationships are evident. The directionality of these interrelationships is fiercely debated with no agreement on the predictive power of constructs (Athanasopoulou, 2009; Valvi & Fragkos, 2012; Verma et al., 2016). For example, some researchers contend online trust is a stronger predictor of online satisfaction (Singh & Sirdeshmukh, 2000; Jin et al., 2008; Rafiq et al., 2013; Ziaullah et al., 2014; Malhotra et al., 2017). Whereas other researcher argue the opposite and assert online satisfaction is a stronger predictor of online trust (Jarvenpaa et al., 2000; Gefen, 2002; Casaló et al., 2007; Chiu et al., 2012; Giovanis & Athanasopoulou, 2014; Barreda et al., 2015) .

The relationship between satisfaction and commitment is less contentious with general agreement on the greater predictive power of online satisfaction towards online commitment (Fullerton, 2011; Ziaullah et al., 2014). The lack of studies examining satisfaction and commitment is expected given the limited focus on commitment generally in the online loyalty literature. (Yoon 2009; Ganguly et al., 2010; Chen et al.,

2015; Frasquet et al., 2017; Peña-García et al., 2018). The third research gap therefore is the limited focus on the magnitude of individual effects of relationship quality (trust, satisfaction and commitment) and the lack of agreement on the directionality between the individual dimensions. To address these issues, relationship quality is examined from a disaggregated perspective which facilitates the comparison of individual dimensions and their interrelationships. Furthermore examining individual magnitude of effects provides e-tailers with practical applications of where best to allocate resources.

A key issue that emerges from a review of the literature pertaining to online loyalty studies, is the lack of empirical evidence within a multi-country and multi-sector framework. Considering the majority of studies either focus on single or two country datasets cross-validation of findings are limited (Gefen & Heart, 2006; Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013; Chen et al., 2015). In addition empirical evidence based on the interrelationships between online ongoing trust and online satisfaction and online affective commitment are particularly limited (Athanasopoulou, 2009; Valvi & Fragkos, 2012; Verma et al., 2016). This is a significant gap considering the debate on the directionality of relationships. The fourth research gap highlighted is the lack of empirical evidence. This study therefore seeks to establish a robust dataset (in both the clothing and electrical sectors) with significant numbers in each sub-dataset (country datasets for China, India, UK and US) with a minimum sample size of 250. Moreover, this will facilitate the provision of empirical evidence on the directionality of relationships between individual dimensions of relationship quality addressing a noteworthy gap in the literature.

The influence of moderating factors in setting boundary conditions is found to be generally lacking in the relationship quality research stream (Athanasopoulou, 2009).

Subsequent to an extensive review of the literature, the moderating effect of consumer cosmopolitanism does not appear in any online loyalty studies. Given evidence of consumer attitudes becoming more homogeneous (Alden et al., 2006), this is an important omission. Although the moderating effect of product category involvement has been examined in the wider offline loyalty literature (De Wulf et al., 2001; Olsen, 2007; Dagger & David, 2012; Swoboda et al., 2013), it has been less examined in the online loyalty and relationship quality stream (Athanasopoulou, 2009). The lack of focus on product category involvement online is surprising, given the popularity of online product categories including clothing and electrical products which tend to have opposing hedonic and utilitarian motivations (Kushwaha & Shankar, 2013). The moderating effect of national culture as expected appears more prolifically in the international online loyalty literature. The inclusion of Hofstede's dimensions of culture is one of the more popular frameworks adopted, with the dimensions of individualism and collectivism appearing in a number of studies (Jarvenpaa et al., 1999; Pavlou & Chai, 2002; Gefen & Heart, 2006; Jin et al., 2008; Cyr, 2008; Yoon, 2009; Ganguly et al., 2010; Frost et al., 2010; Chen et al., 2015; Gracia et al., 2015; Elbeltagi & Agag, 2016; Frasquet et al., 2017; Peña-García et al., 2018). However, the moderating role of national culture on the relationship between online perceived relationship investment and online loyalty through the individual dimensions of online ongoing trust, online relationship satisfaction and online affective commitment has not previously been examined, to the researcher's knowledge. This presents a unique opportunity to the examine the influence of national culture on e-tailer investments addressing a significant gap in the international e-tailing research stream. The fifth research gap is the lack of theoretical frameworks in the relationship quality stream that include moderating influences examining boundary conditions. Addressing



this theoretical gap, moderating influences of consumer cosmopolitanism, product category involvement and national culture are employed.

Previous frameworks to conduct multi-country studies have focused on cultural dimensions based on national differences (Fukuyama, 1995; Hall & Du Gay, 1996; Hofstede 1983, 2001). However, a growing number of studies argue for more individual level criteria to be included in multi-country studies (Triandis, 1989; Yoon, 2002; Ng et al., 2007; Cleveland, Erdoğan et al., 2011; Riefler et al., 2012). Addressing this issue, this study adopts a multi-country approach examining national culture through traditional aggregate level frameworks including Hofstede's dimensions of culture – individualism and collectivism (Hofstede 1983, 2001), alongside more alternative views based on individual level criteria including consumer cosmopolitanism (Riefler et al., 2012). Thus, providing a more robust insight into international online loyalty formation. Finally from a methodological perspective the number of studies using contemporary moderation techniques such as conditional process analysis (Hayes, 2018) are very limited. This is not surprising given the relatively limited focus on moderating influences. To address this methodological gap, moderation effects are examined through a system of conditional process analysis which examines mediating and moderating influences simultaneously. (Hayes, 2018).

### **3.2 Conceptual Model**

The model is developed from current gaps identified in the literature and constructed to address the main research question: – ‘*How does the reciprocating behaviour of consumers resulting from online perceived relationship investment affect online loyalty formation across countries and sectors?*’

Online loyalty is examined from a theoretical foundation comprising of relationship marketing, relationship quality and reciprocity and focuses on psychological drivers of loyalty. Within this context if the relationship between consumers and e-tailers is strong and relationship quality high, consumers will tend to have longer term and more stronger relationships and hence are more likely to be more loyal (Anderson & Srinivasan, 2003; Vesel & Zabkar, 2010; Walsh et al., 2010; Verma et al., 2016). Furthermore, positive reciprocal exchanges could potentially create stronger and longer lasting relationships and in turn more loyal customers (Yoon et al., 2008; Rafiq et al., 2013).

Emerging from the extensive literature review the conceptual model shown in Fig. 3.1 displays the proposed relationships between constructs. It aims to test the strength of the relationships between the given constructs as demonstrated by the path relationships. Additionally the empirical study provides evidence in terms of its performance across four different countries (China, India, UK and US) and across two sectors (clothing and electrical). In addressing the main research question the key outcome variable is defined ELOYALTY abbreviated from online loyalty and is the main consequence of this study. ELOYALTY is based on customer online repurchase intention and positive word of mouth, reflecting loyalty intentions towards an e-tailer (Zeithaml, 1988; Reichheld & Scheffer, 2000). The main antecedent of this study is online perceived relationship investment (EPRI) and focuses on perceived investments made by e-tailers online in the relationship. This differs from previous studies that have examined offline retailer investments (De Wulf et al., 2001). In accordance with a number of relationship quality studies, relationship quality is examined through individual dimensions which are included in the model as relational mediators (Wang & Head, 2007; Qin et al., 2009; Verma et al., 2016). The individual dimensions comprise of: online ongoing trust

(ETRUST), online relationship satisfaction (ERS) and online affective commitment (EAC). ETRUST represents trust with the e-tailer based on previous transactions and therefore examines ongoing trust compared to initial trust. ETRUST is based on customer confidence in interacting with the e-tailer and on the assumption the e-tailer will ‘make good’ on any negative situations therefore mitigating risk associated with interactions with the e-tailer (Lee & Turban, 2001; Gefen, 2002). Similarly ERS is formed according to cumulative encounters and reflects satisfaction in the relationship rather than satisfaction in the transaction which offers a more short term view (Crosby et al., 1990; Shankar et al., 2003; Anderson & Srinivasan, 2003). EAC represents the emotional attachment of the customer to the e-tailer and reflects a willingness to continue the relationship (Allen & Meyer, 1990; Fullerton, 2005; Evanschitzky et al., 2006). This is further aligned with the concept of ‘reciprocity by desire’ and focuses on positive mechanisms to engage in the relationship (Meyer & Allen, 1991).

The model examines the impact of EPRI on ELOYALTY through relationship quality (RQ), and the individual contributions of these efforts on ETRUST, ERS and EAC. The model offers a tripartite perspective on mechanisms of e-loyalty formation across countries and sectors. First, path relationships between EPRI and the individual dimensions of RQ are highlighted. This allows comparisons of the magnitude of the effect of EPRI on the individual dimensions (ETRUST, ERS and EAC) to be made and compared across countries and sectors. A similar approach is taken with path relationships between the individual dimensions and ELOYALTY, with comparisons on the strength of the relationships between ETRUST, ERS and EAC with ELOYALTY made. This approach of examining RQ from a disaggregated perspective is relatively scant in the online loyalty literature with more studies leaning towards the inclusion of

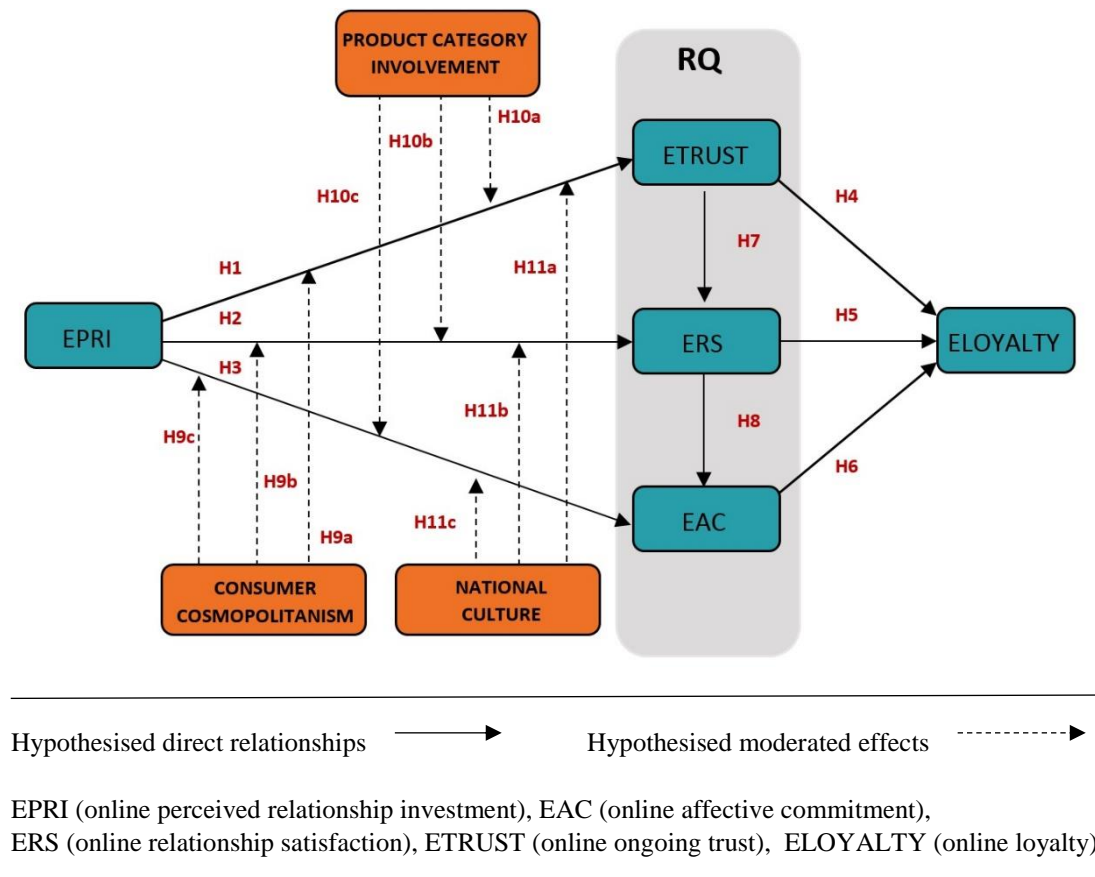
aggregate models (Izogo, 2016). Therefore, this model should provide further insight into the individual impacts of ETRUST, ERS, and EAC, enabling comparisons to be made, indicating stronger path relationships.

Second, directionality of relationships between the individual dimensions of ETRUST, ERS and EAC are explored. Unlike previous online loyalty studies these interrelationships are examined providing empirical evidence on similarities and differences across countries and sectors. Adding to the debate in the literature, this model reflects the arguments for the directionality of relationships between; ETRUST to ERS and ERS to EAC.

Third, the moderating impacts of consumer cosmopolitanism, product category involvement, and national culture are included, examining boundary conditions. Furthermore, the moderating impacts are investigated between EPRI and the individual dimensions of ETRUST, ERS and EAC, allowing comparisons between the individual dimensions to be made. More specifically, the model highlights moderation on indirect effects of EPRI on ELOYALTY through ETRUST, ERS and EAC.

Overall, the model reflects the main argument of this study that EPRI positively affects ELOYALTY through RQ and the individual dimensions of ETRUST, ERS and EAC. While the model addresses research gaps in the literature, it also tests whether existing relationships discussed in the current literature still hold true. These relate to the relationships between the individual dimensions of RQ and ELOYALTY. While there is some agreement in the existing literature that ERS and EAC generally have a positive relationship with ELOYALTY (Jin et al., 2008; Rafiq et al., 2013; Elbeltagi & Agag, 2016; Peña-García et al., 2018), empirical evidence is limited on this impact across

countries and sectors. Furthermore, empirical evidence related to the relationship between ETRUST and ELOYALTY draws attention to a range of findings. While some studies maintain a positive direct relationship between trust and online loyalty (Flavián & Guinalíu, 2006; Mukherjee & Nath, 2007; Chiu et al., 2012) others find no direct relationship and contend satisfaction mediates the relationship (Rafiq et al., 2013). This is supported in studies that find satisfaction either partially or fully mediates the relationship between trust and online loyalty (Singh & Sirdeshmukh, 2000; Kim et al., 2009). Moreover, some studies contend culture influences the relationship between trust and online loyalty, albeit through additional factors of levels of e-commerce development (Chen et al., 2015; Peña-García et al., 2018). In contrast other studies argue culture has no effect on the trust-loyalty link (Cyr, 2008; Jin et al., 2008). This study argues for a positive relationship between ETRUST and ELOYALTY and more importantly is able to provide empirical evidence on this relationship across countries and sectors.

**Fig 3.1 Conceptual Model**

### 3.3 Research Hypotheses

#### 3.3.1 Online Perceived Relationship Investment, Online Ongoing Trust, Online Relationship Satisfaction and Online Affective Commitment

The role of perceived relationship investment has recently emerged as an important construct in the retailing loyalty literature (Hsieh et al., 2005; Wang & Head, 2007; Yoon et al., 2008; Mimouni-Chaabane & Volle, 2010; Rafiq et al., 2013; Park & Kim, 2014). Studies argue that consumers will value the efforts and investments made by retailers and are likely to reciprocate these efforts with higher levels of loyalty through increased levels of relationship quality (De Wulf et al., 2001). Furthermore, these ‘efforts’ contribute to creating psychological ties between retailers and consumers encouraging loyalty within

the relationship (Gruen, 1995; De Wulf et al., 2001). To date a limited number of studies have examined retailer investments in an online context (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013). While retailer investments in an offline context have been shown to positively affect consumer relationships, they have focused on traditional marketing tactics including; direct mail, preferential treatment, interpersonal communication and tangible rewards (De Wulf et al., 2001) or loyalty programs (Mimouni-Chaabane & Volle, 2010).

The online environment may present distinct opportunities for retailer investments and the need to understand these interactions in a virtual environment becomes more significant (Steinhoff et al., 2018). In an online grocery study Rafiq et al. (2013) indicate e-tailer investments could include virtual tactics including; personalised web pages, tailored recommendations and customised service. These value-added features could be extended to social media communities, personalised products and mobile apps. Although not an exhaustive list, mechanisms for online loyalty formation involving EPRI has not been studied widely, presenting opportunities in understanding this construct further. The study by Rafiq et al. (2013), address the importance of EPRI in an online context where investments and efforts made by the e-tailer could signal the firms intentions of good will and valued custom. Given consumers must rely on virtual cues to make judgements, the use of EPRI could prove advantageous to e-tailers in an already competitive environment. Addressing one of the key research gaps, no known multi-country, multi-sector studies exist examining EPRI. Little insight therefore exists regarding online loyalty formation across countries and sectors involving EPRI as an antecedent. This could prove useful to e-tailers given the increase in international e-tailing and growth of the two most popular online categories (clothing and electrical). Furthermore, EPRI may have the potential to

form stronger relationships and hence greater loyalty through positive reciprocal mechanisms (Rafiq et al., 2013; Kozlenkova et al., 2017).

To understand the impact of EPRI on ELOYALTY, more specifically RQ is examined as a disaggregated construct. The approach of examining the impact of EPRI on RQ is mixed in the online literature with RQ examined as an aggregate (Yoon et al., 2008) and a disaggregate construct (Wang & Head, 2007; Rafiq et al., 2013). This study adopts the latter approach and examines the impact of EPRI on the individual dimensions of RQ namely; ETRUST, ERS and EAC. The disaggregated approach to RQ facilitates an examination of the individual magnitude of effects of the individual dimensions of relationship quality. Further allowing a comparison of these three effects across countries and sectors which currently to date no e-tailing studies provide to the researcher's knowledge.

Support is provided in both the online and offline literature where consumers tend to demonstrate more trust towards retailers that make an effort in the relationship (De Wulf et al., 2001; Yoon et al., 2008; Mimouni-Chaabane & Volle, 2010; Rafiq et al., 2013; Swoboda et al., 2013). This may be of greater importance in an online environment where consumers rely on virtual cues to assess e-tailers. More traditional cues affecting ETRUST have focussed on aspects including; website design, security, privacy, payment methods, order fulfilment and navigability (Bart et al., 2005; Eastlick & Lotz, 2011; Steinhoff et al., 2018). However, these are based on functional rather than psychological drivers of online loyalty formation. From a relationship marketing perspective relationship development through these virtual cues can be categorised as being fostered through utilitarian exchanges (Bagozzi, 1995). E-tailer investments in the relationship based on positive reciprocal exchanges could facilitate stronger levels of ongoing



ETRUST. Given ETRUST is based on previous interactions, repetitive positive interactions may lead to stronger reciprocal relationships (De Wulf et al., 2001; Kozlenkova et al., 2017). If consumers perceive e-tailers are making a concerted effort in the relationship over time, this may be taken as an indication of goodwill in the relationship. Therefore increasing confidence in continuing interactions and providing greater reassurance that the e-tailer will ‘make good’ if problems do arise. Consequently, this could result in increasing levels of ETRUST based on previous interactions (Gefen, 2002; Kim et al., 2010; Lee & Choi, 2011). If e-tailers are perceived to invest in the relationship consumers may be more likely to reward these positive actions. Consumers may be more likely to trust e-tailers that have invested in the relationship thereby facilitating more confidence from consumers whilst mitigating risks. This could lead to reciprocating behaviour from consumers in developing more trust. Therefore, the following hypothesis is proposed:

***H1: EPRI will have a positive effect on ETRUST***

In a similar fashion a limited number of studies exist examining the impact of EPRI on ERS. Previous studies in the e-tailing literature have shown a positive relationship between EPRI and ERS (Wang & Head, 2007; Rafiq et al., 2013). Studies have generally shown where retailers make an effort in the relationship, consumers tend to be more satisfied (Gruen, 1995). This is in line with a number of online satisfaction studies, that focus on relationship satisfaction and cumulative experiences (Rafiq et al., 2013; Gracia et al., 2015; Kumar et al., 2017). Given ERS is based across transactions studies tend to focus on performance based antecedents including; convenience, site design, financial security, order management and e-service quality (Szymanski & Hise, 2000; Evanschitzky et al., 2006; Gounaris et al., 2010). Within a relationship marketing context,

relationship development based on performance antecedents is concentrated around utilitarian exchanges (Bagozzi, 1995). Reciprocal exchanges are not widely explicitly examined in the literature.

Positive reciprocal exchanges (as opposed to more negative based reciprocal exchanges) could potentially develop stronger relationships and higher levels of relationship quality through higher levels of satisfaction. If customers perceive e-tailers are investing in the relationship this is more likely to be viewed as a positive effort in the relationship. This in turn could lead to more satisfaction in the overall relationship through greater levels of contentment (Crosby et al., 1990; Srinivasan et al., 2002). Assuming cumulative encounters have overall been positive customers may reciprocate positive investments with greater overall satisfaction in the relationship (Garbarino & Johnson, 1999; Jin et al., 2008; Verma et al., 2016). Given EPRI is a perceptual based rather than performance based antecedent, consumers may be more likely to value e-tailer investments perceived to have been in the relationship (Wang & Head, 2007; Rafiq et al., 2013). Further support is given in Verma et al., (2016) which identifies relationship satisfaction as the most common relational mediator appearing in online relationship marketing studies and cites the importance of relationship investment in enhancing loyalty. EPRI may have a significant impact on online relationship satisfaction which has a long term focus based on cumulative positive encounters (Wang & Head, 2007; Rafiq et al., 2013; Verma et al., 2016). Consumers may reciprocate with higher levels of satisfaction in the relationship if the e-tailer is perceived to have invested in the relationship. Therefore, the following hypothesis is proposed:

***H2: EPRI will have positive effect on ERS.***

Affective commitment (EAC) relates to the emotional attachment of the consumer to the organisation and is generally seen as the desire to continue the relationship (Allen & Meyer, 1990). While this construct is seen as having a positive impact on ELOYALTY it has not been examined as widely as ERS and ETRUST (Toufaily et al., 2013; Verma et al., 2016). Studies maintain there is strong link between efforts made by sellers and the strength of the customers' commitment (Gruen, 1995). Furthermore, affective commitment based on emotional bonds may have a stronger impact on loyalty compared to calculative and normative commitment (Fullerton, 2005; Evanschitzky et al., 2006). If customers are motivated by positive mechanisms they have a greater desire or willingness to continue the relationship and so higher levels of affective commitment (Allen & Meyer, 1990; Fullerton, 2005; Evanschitzky et al., 2006). This has parallels to Allen & Meyers (1991) concept of 'reciprocity by desire', where reciprocal exchanges are based on positive interactions which could translate into stronger relationships. If e-tailers invest in the relationship customers may interpret this as a positive signal in the relationship and so have a greater willingness to continue the relationship resulting in stronger affective commitment. This additionally could facilitate reciprocal exchanges based on positive drivers leading to stronger emotional bonds with the e-tailer.

Positive drivers may have stronger consequences than negative drivers of reciprocity including obligation (Kang & Ridgway, 1996) and guilt (Dahl et al., 2005). Similarly commitment based on constraint (calculative commitment) and obligation (normative commitment) may have a lesser impact (Evanschitzky et al., 2006). Furthermore, Rafiq et al. (2013) claim EPRI as having the strongest impact on EAC in comparison to other dimensions of RQ including ETRUST and ERS. Given EAC is based on emotional attachments, consumers may be more likely to reciprocate with stronger emotional ties

based on e-tailer investments and positive drivers of reciprocity in the relationship. The following hypothesis is therefore proposed:

***H3: EPRI will have a positive effect on EAC.***

### **3.3.2 Online Ongoing Trust, Online Relationship Satisfaction and Online Affective Commitment and Online Loyalty**

A number of studies have found a positive direct relationship between trust and loyalty and this is further reflected in the online environment with a positive direct relationship between ETRUST and ELOYALTY (Gefen, 2002; Cyr, 2008; Kim et al., 2009). Where consumers have higher levels of ETRUST based on previous interactions with an e-tailer they are more likely to return and engage further in interactions with the e-tailer (Chiu et al., 2012; Metilda, 2016). For example, consumers who are not price sensitive, may remain loyal to e-tailers they trust due to the higher perceived risks associated with using unfamiliar e-tailers (Mukherjee & Nath, 2007). This is echoed by Chiu et al. (2012) who maintain cumulative experiences of consumers interacting with an e-tailer affect ETRUST. Customers may develop more confidence in the relationships with the e-tailer and reduced perceptions of risk (Lee & Turban, 2001). These repeat interactions if positive can help develop ETRUST over time and hence further encourage repeat business (Flavián et al., 2006; Kim, et al., 2010; Lee & Choi, 2011). There is debate in the literature with regards to the nature of the relationship between ETRUST and ELOYALTY with studies suggesting both full and partial mediating effects are evident through ERS (Singh & Sirdeshmukh, 2000; Kim et al., 2009; Rafiq et al., 2013).

Consumers may be loyal to e-tailers because they trust them demonstrating a direct positive relationship. On the other hand trust in the e-tailer may affect satisfaction in the

relationship which in turns affects loyalty. Furthermore, combinations of the two may be evident. Given the disaggregated RQ model approach, this study is able to examine both full and partial mediating effects. Debate exists on the influence of culture on the relationship between ETRUST and ELOYALTY. While Cyr (2008) and Jin et al. (2008) argue culture does not affect the trust and loyalty relationship, Peña-García et al. (2018) and Chen et al. (2015) argue the opposite. Contributing to the debate, the conceptual model allows for the examination of the influence of culture at both an aggregate national level (Hofstede, 1983, 2001) and at an individual level through consumer cosmopolitanism (Riefler et al., 2012).

This study puts forward the argument if consumers have had positive previous interactions with an e-tailer are more likely to develop a strong sense of trust with the e-tailer and in the relationship. In accordance with Gefen (2002), if consumers have higher levels of ongoing online trust this will in turn make them more likely to engage with the e-tailer in the future. This in turn could increase repeat purchase intention and hence loyalty. The subsequent hypothesis is therefore suggested:

***H4: ETRUST positively effects ELOYALTY***

Relationship satisfaction is seen in a number of studies as a cumulative effect of customer interactions with a retailer which places importance on the development of a satisfied relationship over time (Crosby et al., 1990; Jin et al., 2008). A number of studies have shown a positive link between ERS and ELOYALTY, where consumers tend to increase loyalty to e-tailers where there is satisfaction in the relationship (Jones & Suh, 2000; Szymanski & Hise, 2000; Wolfinbarger & Gilly, 2002; Anderson & Srinivasan, 2003; Shankar et al., 2003; Verma et al., 2016). Studies argue the relationship between ERS and

ELOYALTY is not always linear and the correlation between ERS and ELOYALTY will depend on the industry and price sensitivity of customers (Balabanis et al., 2006; Christodoulides & Michaelidou, 2010; Gracia et al., 2015). For example, consumers may be extremely satisfied with the relationship with an e-tailer but could easily switch to a competitor if products are significantly cheaper (Yang & Peterson, 2004). Switching costs are more aligned with economic mechanisms for relationship development and indicate a more short term view (Bagozzi, 1995; Balabanis et al., 2006; Tsai & Huang, 2009). In contrast reciprocal exchanges could facilitate a longer term view of relationship development based on cumulative positive interactions. This study argues relationship satisfaction is more likely to positively affect ELOYALTY over the longer term through positive reciprocal exchanges. Customers may feel more satisfied in the overall relationship which is likely to lead to a longer term more loyal relationship. Furthermore, ERS may contribute to developing better quality and longer term relationships with consumers even if they switch to competitors in the short-term (Srinivasan et al., 2002; Yang & Peterson, 2004). The next hypothesis is therefore:

***H5: ERS positively effects ELOYALTY***

Studies have shown that consumers with higher levels of EAC display greater levels of emotional attachment to a retailer or brand and this in turn could manifest in terms of increased loyalty to that retailer (Allen & Meyer, 1990; Dick & Basu, 1994; Mukherjee & Nath, 2007; Elbeltagi & Agag, 2016). Online loyalty studies in the retailing sector tend to focus on calculative commitment through loyalty schemes. This type of commitment is based around economic incentives and financial switching costs where consumers are rewarded for loyalty to an e-tailer (Stathopoulou & Balabanis, 2016; Reinartz & Linzbach, 2018). However, it could also make customers feel ‘tied’ to an e-tailer and

constrained which could result in relationship development based on negative associations and reluctance (Evanschitzky et al., 2006). While these schemes have traditionally been employed to increase customer loyalty, a number of studies argue affective commitment based on emotional bonds may develop stronger levels of loyalty online (Fullerton, 2005; Evanschitzky et al., 2006). The limited number of studies examining EAC in an e-tailing sector have shown a positive relationship between EAC and ELOYALTY (Mukherjee & Nath, 2007; Rafiq et al., 2013; Elbeltagi & Agag, 2016).

Affective commitment does not rely on consumers being tied to retailers or sanctioned for switching and relies on more positive reinforcements through emotional attachments (Fullerton, 2005). Furthermore, stronger relationships may be formed through positive reciprocal mechanisms based on willingness rather than negative ones based on obligation (Allen & Meyer, 1991). This distinction may make customers feel more emotionally attached to an e-tailer, developing stronger connections based on 'free will'. This emotional attachment may drive stronger psychological ties between consumers and e-tailers and so influence loyalty to a greater extent. The following hypothesis is therefore proposed:

***H6: EAC positively effects ELOYALTY***

### **3.3.3 Directionality of Relationships between Online Ongoing Trust, Online Relationship Satisfaction and Online Affective Commitment**

There is much debate in the literature concerning the directionality of the relationship between ETRUST and ERS. A number of studies maintain ERS positively effects ETRUST with the direction of the relationship leading from ERS → ETRUST (Gefen, 2002; Flavián et al., 2006; Barreda et al., 2015). These studies claim consumers who are satisfied in the relationship with an e-tailer tend to demonstrate more trust due to their

previous positive interactions and satisfaction levels. The opposing view argues ETRUST positively effects ERS with the direction of the relationship running from ETRUST → ERS (Kim et al., 2009; Rafiq et al., 2013; Malhotra et al., 2017). These studies argue ongoing ETRUST is a prerequisite for developing satisfaction in the relationship because of additional risks shopping online compared to offline. If consumers have more trust in an e-tailer based on previous encounters, this will affect their satisfaction in the relationship. As relationship satisfaction is based on cumulative encounters, these encounters will be more fulfilling and satisfying as consumers already have trust with the e-tailer. This could make the online experience more enjoyable and relaxing as consumers have mitigated risks by engaging with a trusted e-tailer. This study adopts the latter stance and argues ETRUST will be a stronger predictor of ERS. The following hypothesis is therefore proposed:

***H7: ETRUST will have a positive effect on ERS***

Empirical evidence of the relationship between ERS and EAC in the e-tailing environment is limited. This reflects the wider issue of a general lack of studies regarding EAC in the ELOYALTY literature. There is some support for the positive relationship between ERS and EAC with the directionality of the relationship running from ERS → EAC (Hennig-Thurau et al., 2002; Rafiq et al., 2013; Ziaullah et al., 2014). These studies argue if consumers are satisfied with previous interactions with the e-tailer they are more likely to show higher levels of EAC. Higher levels of EAC are created and reinforced through emotional bonds emerging from higher levels of satisfaction (Garbarino & Johnson, 1999; Fullerton, 2005). The following hypothesis is suggested:

***H8: ERS will have a positive effect on EAC***



### **3.3.4 Moderating effect of Consumer Cosmopolitanism**

Consumer cosmopolitanism presents an alternative framework to examine culture through an individual's cultural values based on personality tests (Cleveland et al., 2009; Riefler et al., 2012). Cosmopolitan consumers are described as; diversity appreciating, open-minded, variety-seeking and positive thinking individuals (Yoon et al., 1996; Holt, 1997; Cleveland et al., 2011; Riefler et al., 2012). Common characteristics include a general openness and appreciation of other cultures and more importantly favourable attitudes towards foreign and global products and services (Cannon & Yaprak, 2002; Riefler et al., 2012; Laroche et al., 2018). In an eight country study Cleveland et al. (2009), contend cosmopolitan consumers are more likely to engage in using the internet, e-mail and mobile phone compared to consumers who are viewed as more ethnocentric. Given their general familiarity with technology (internet use), awareness of global as well as local brands and overall openness to new experiences, cosmopolitan consumers are well placed to be examined within an e-tailing context. This provides an ideal contextual setting for online shopping, where consumers may share common interests globally by shopping online and hence demonstrate greater similarities across countries as global consumers (Cannon & Yaprak, 2002; Caldwell et al., 2006; Cleveland & Laroche, 2007; Riefler & Diamantopoulos, 2009).

The literature regarding cosmopolitanism and online loyalty in an e-tailing setting is extremely limited with a lack of empirical studies including moderating effects of consumer cosmopolitanism. Research has tended to focus on purchase intention and willingness to buy foreign and global products (Cleveland & Laroche, 2007; Riefler & Diamantopoulos, 2009). A number of studies find cosmopolitan consumers are more open and receptive to other cultures and hence more likely to purchase foreign and global

products (Riefler et al., 2012; Zeugner-Roth et al., 2015; Dogan & Yaprak, 2017). Additional studies further argue cosmopolitan consumers tend to have higher levels of brand origin recognition and hence more favourable brand attitudes towards global brands (Laroche et al., 2018).

This study argues that cosmopolitan consumers will be more familiar with shopping online due to their higher levels of consumer innovativeness (willingness to try new brands and services) greater exposure to technology (Alden et al., 2006; Riefler et al., 2012; Lim & Park, 2013). Research further indicates cosmopolitan consumers are more inclined to make independent purchasing decisions with limited influence from external social or local pressures (Thompson & Tambyah, 1999; Cannon & Yaprak, 2002). For example, decisions may be based on quality and standards rather than on local traditions. This suggests cosmopolitan consumers may be more loyal to an e-tailer regardless of origin based on positive interactions and experiences with the e-tailer. Cosmopolitan consumers may view e-tailer investments more positively given their open mindedness, greater receptiveness of global and foreign brands (including services) and independent decision making. This may facilitate stronger relationship development based on positive reciprocal exchanges.

Research indicates cosmopolitan consumers are more likely to be risk-taking given their willingness to explore the world (Riefler et al., 2012). This could imply trust forming mechanisms may be strengthened as cosmopolitan consumers are less risk averse. This study argues cosmopolitan consumers will strengthen the effect of EPRI on ETRUST and ultimately ELOYALTY. Consumers may be more willing to trust e-tailers that have invested in the relationship due to personal characteristics of lower risk aversion. The following hypothesis is therefore suggested:

***H9a Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ETRUST***

Cosmopolitan consumers are less influenced by external local and social pressures when making purchasing decisions (Thompson & Tambyah, 1999; Cannon & Yaprak, 2002; Riefler et al., 2012). This implies cosmopolitan consumers will tend to base decisions on independent expectations of quality and excellence (Cannon & Yaprak, 2002) which may strengthen ERS. Cosmopolitan consumers may reciprocate positive e-tailer investments with greater overall satisfaction in the relationship. This relationship could be strengthened further as decisions are based on independent choices and hence more likely to be with e-tailers based on previous positive encounters resulting in greater ERS. The next hypothesis put forward is:

***H9b Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ERS.***

Cosmopolitan consumers are considered more open-minded and positive thinkers (Yoon et al., 1996; Riefler et al., 2012), which may strengthen emotion based drivers including EAC. Research indicates cosmopolitanism does enhance brand affect which is similar to EAC. Cosmopolitan consumers may consider e-tailer investments as positive signals in the relationship resulting in stronger levels of affective commitment. In turn this relationship could be strengthened by individual characteristics of open-mindedness and positive thinking which may contribute to stronger emotional connections and hence affective commitment. The subsequent hypothesis is therefore recommended:

***H9c Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through EAC***

This study argues, consumers that have a higher cosmopolitan orientation will value the investments made by e-tailers to a greater extent based on personal characteristics (risk-taking, open-mindedness, positive thinking, independent decision making) and hence, are more likely to reciprocate in terms of higher levels of ETRUST, ERS, and EAC and so ELOYALTY. Consumers from four culturally divergent countries (China, India, US and UK), will be examined in terms of cosmopolitan orientation providing a multi-country focus.

### **3.3.5 Moderating effect of Product Category Involvement.**

The level of product category involvement will vary according to consumers' individual interest, importance and meaning towards a particular category (Hirschman & Holbrook, 1982; Zaichkowsky, 1985; Dagger & David, 2012). This suggests consumers may have different levels of product category involvement regarding the same product category based on individual characteristics. For example, if the clothes consumers wear or the mobile phone they possess has greater personal meaning or importance, product category involvement will be higher (Mittal, 1995; De Wulf et al., 2001). Decision making for these consumers surrounding purchasing and repurchasing requires greater involvement in terms of information search and product evaluation usually incorporating more complex and detailed information processing paths (Celsi & Olson, 1988; Swoboda et al., 2009). Conversely, within the same product category consumers may have lower levels of product category involvement where less meaning and importance is attached to the product category (Mittal, 1995). Research suggests these may be more routinely bought or lower value products (Chaudhuri, 1998; Liang et al., 2008).

While individual differences exist, a number of studies adopt a broader view of product category involvement based on hedonic and utilitarian categorisations (Park & Kim, 2003; Kushwaha & Shankar, 2013). The clothing sector is often viewed as hedonic given consumer decision making motivations tend to be based on emotional and pleasure seeking appeals (Hirschman & Holbrook, 1982; Michaelidou & Dibb, 2006; Jones & Kim, 2010). Research suggests hedonic sectors may elicit greater affective (emotional) involvement where involvement is driven by emotional responses (Zaichkowsky, 1987). In contrast, the electricals sector is often viewed as utilitarian where motivations are more based on rational and functional appeals (Park & Kim, 2003). Studies assert cognitive involvement may be more influential in utilitarian sectors where functionality is a stronger driver (Kim & Sung, 2009). In a multichannel study, Kushwaha and Shankar (2013), extend the characterisation of hedonic and utilitarian sectors further by examining moderating effects of high and low risk product characteristics.

Within a relationship marketing context Gordon et al. (1998) contend consumers' increased product category involvement will positively influence relationship marketing tactics, most importantly continuity in the relationship. Consequently purchase likelihood is more likely to increase. Additional support is provided by Odekerken-Schröder et al. (2003), who assert higher levels of product category involvement as a personality trait induce stronger levels of consumer relationship proneness which subsequently positively affects relationship commitment and in turn buying behaviour. These studies reinforce the wider literature where greater loyalty tends to be shown by individuals who are more highly involved in a product category. (De Wulf et al., 2001; Wang, H. et al., 2006; Dagger & David, 2012; Frasquet et al., 2017).

The moderating role of product category involvement is far less examined in the online loyalty and relationship marketing appearing in a handful of offline (Homburg & Giering, 2001; De Wulf et al., 2001; Swoboda et al., 2009) and service studies (Dagger & David, 2012). In an offline retailing study examining food and apparel sectors, De Wulf et al. (2001) find a significant moderating effect of product category involvement on retailer investments and relationship quality. The study by De Wulf et al. (2001) argues customers appreciate retailer efforts more strongly when they are more involved in a product category which could be attributable to ‘higher stakes’ in the relationship. However, in the De Wulf et al. (2001) study, moderating effects of product category involvement are examined on the relationship between retailer investments and an aggregate construct of relationship quality providing a unidimensional view of relationship quality. This study examines the moderating effects of product category involvement on the individual dimensions of relationship quality (trust, satisfaction and commitment) thereby providing a more multidimensional examination of relationship quality. Furthermore, the De Wulf et al. (2001) study does not examine higher value, complex functional products which this study does, incorporating elements of perceived functional risk which may affect exchange efficiency and perceptions of value gains in the exchange process (Palmatier et al., 2008).

This study argues consumers will value e-tailer investments more strongly, where there are higher levels of product category involvement, due to greater consumer investments of time and effort in decision making. Consumers are therefore more likely, to reciprocate with higher levels of ELOYALTY through ERS and EAC towards positive e-tailer investments. However, the effect of e-tailer investments may be more varied in

relation to ETRUST with both positive and negative effects dependent on perceived risk, exchange inefficiency and perceptions of value gains in the exchange process.

Studies have shown the clothing sector is perceived as having relatively low functional risk and involvement in the product category is based on more emotional and hedonic appeals (Park & Kim, 2003; Jones & Kim, 2010; Kushwaha & Shankar, 2013). Consumers may further value e-tailer efforts in forming trust as a response to greater individual involvement in the product category and reciprocate with higher levels of loyalty. Positive efforts may be interpreted as contributing to lower levels of perceived risk and greater value gains in the exchange process and hence less exchange inefficiency leading to more trust. Essentially consumers may view e-tailer investments in hedonic sectors as adding more value in the exchange process and improving exchange efficiency. This could be through an improved sense of shared interest and consumers valuing efforts in exchanges with greater personal meaning. This leads to the following hypothesis:

***H10a<sub>1</sub> Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ETRUST (in hedonic sectors)***

Research suggests higher involvement product categories online such as electrical products, may have higher perceived risks associated with them (Chaudhuri, 1998; Pires et al., 2004). For example, consumers may take significantly more financial risks when purchasing higher involvement products online which may be more complex and of a higher value compared to lower involvement product categories (Bart et al., 2005). Consumers may not necessarily value e-tailer efforts in forming trust in these situations and may rely on more independent and impartial advice to limit functional perceived risk. Thereby, e-tailer investments may have a negative impact on loyalty and trust as

consumers may not consider e-tailer efforts as adding more value in the exchange process and may be more likely to identify exchange inefficiencies. This leads to the following hypothesis:

***H10a<sub>2</sub> Higher levels of product category involvement weaken the indirect effect of EPRI on ELOYALTY through ETRUST (in functional sectors)***

Customers tend to have enhanced positive shopping experience online when there is a higher level of involvement in the product category (Koufaris, 2002). This could be due to more in-depth information search and product evaluation processes involved with online shopping coupled with higher expectations of e-tailers based on previous interactions. In line with expectancy-disconfirmation theory, customers more involved in a product category tend to have higher expectations of e-tailers which are positively disconfirmed resulting in greater overall satisfaction (Wallace et al., 2004). E-tailer efforts therefore may be more valued by customers with higher levels of product category involvement based on previous encounters and expectation levels. For example if customers expect e-tailer efforts to be beneficial are more likely to be satisfied in the relationship and hence reciprocate with higher levels of loyalty. The following hypothesis is proposed:

***H10b Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ERS***

Higher levels of product involvement are commonly associated with higher levels of commitment based on emotional attachments (Zaichkowsky, 1987; Wang et al., 2006). This suggests customers may be more involved in a product category due to greater levels of personal meaning, importance and interest resulting in stronger attachments. The study



by Odekerken-Schröder et al. (2003) contend consumers are more likely to have stronger levels of relationship commitment due to higher levels of product category involvement through a stronger proneness to engage in the relationship. Customers more highly involved in a product category may therefore value e-tailer efforts more strongly if they have a stronger levels of commitment in the relationship suggesting stronger emotional attachments. The following hypothesis is therefore suggested:

***H10c Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through EAC***

### **3.3.6 Moderating effect of National Culture**

This study provides an international investigation into online loyalty through two diverse approaches employing consumer cosmopolitanism and national culture. Consumer cosmopolitanism is based on individual consumer behaviours and therefore examines homogeneity of consumers across countries (Cannon & Yaprak, 2002; Cleveland et al., 2011; Riefler et al., 2012). Alternatively national culture is examined through Hofstede's dimensions of culture and is based on consumer heterogeneity at an aggregate level of national culture. A similar approach is applied in Lim and Park (2013), with the investigation of both national culture and consumer cosmopolitanism examining consumer adoption of innovation. However, studies adopting a two-pronged approach are still limited with none (to the researchers knowledge) focusing on loyalty in an e-tailing context. Opportunities therefore exist to examine the homogeneity and heterogeneity of online shoppers across countries.

National culture is examined with Hofstede's classification of countries through dimensions of individualism and collectivism (Hofstede 1983, 2001). A number of

studies argue cultural factors can influence online loyalty formation (Jin et al., 2008; Cyr, 2013; Gracia et al., 2015; Frassetto et al., 2017). This is based on the assumption of diverse national characteristics centred on national and geographic boundaries are an acceptable proxy of national culture (Steenkamp, 2001; Soares et al., 2007; Hofstede et al., 2010; De Mooij, 2015). The moderating effect of national culture based on Hofstede's dimensions of culture commonly appears across a range of research streams including online loyalty. The bi-polar extremes of dimensions provide clearly delineating measures to quantify moderating effects. Therefore countries can be categorised as demonstrating higher or lower levels of individualism or collectivism, which can potentially strengthen or weaken relationships. Moderation effects based on dimensions of individualism and collectivism are most commonly employed in empirical loyalty studies.

Research suggests online loyalty formation through relationship marketing and reciprocity is likely to be affected by culture. Relationship development is influenced by cultural norms, values and beliefs (Doney 1998). According to Samaha et al. (2014) relationship marketing (through relationship mediators of trust and commitment) is more effective in countries outside the US. Therefore countries including China and India demonstrate greater performance levels based on relationship drivers compared to the UK and US. Similarly, in a study examining reciprocity across cultures through relationship marketing and relationship quality, Hoppner et al. (2015) assert, national culture exhibits varying moderating influences on the relationships between the dimensions of reciprocity (equivalence and immediacy) and relationship quality (comprising of satisfaction, commitment and conflict). Collectivist countries (e.g. Japan) have a stronger effect on equivalence reciprocity in relationship quality formation. Customers in collectivist countries, may expect and value equal reciprocal exchanges more given their focus on

mutually beneficial outcomes (Hofstede, 2001). Studies examining relationship quality through individual dimensions of trust, satisfaction and commitment across countries are limited. A greater emphasis is placed on the effect of culture on varying combinations of trust, satisfaction and commitment on online loyalty, albeit with mixed results (Cyr, 2008).

The effect of national culture on trust and loyalty relationships is mixed. Some studies argue national culture has no effect on related relationships between trust and loyalty (Jarvenpaa et al., 1999; Jin et al., 2008; Yoon 2009; Frasquet et al., 2017). However, other studies contend culture through individualism has a stronger impact on trust and loyalty relationships (Ganguly et al., 2010). In contrast, studies assert collectivism has a stronger effect on trust and loyalty relationships. This study adopts the latter view and argues collectivism will have a stronger impact on trust and loyalty relationships. A number of studies argue collectivist countries may more readily form trust in an online context to maintain harmonious relations and social bonds (Pavlou & Chai, 2002; Gefen, 2002; Peña-García et al., 2018). According to Doney et al. (1998) collectivist society norms and values support behavioural conformity which could contribute to a greater inclination to trust. Customers may trust e-tailers more if expected conventions for acceptable behaviour are adhered to within the group. In collectivist countries reciprocal exchanges may be more aligned with cultural norms and behaviours (Samaha et al., 2014, Hoppner et al., 2015). Customers in collectivist countries may therefore have more favourable attitudes towards e-tailer investments which could enhance relationship marketing tactics.

Coupled with a greater inclination to form trust through behavioural conformity, the following hypothesis is therefore proposed:

***H11a Collectivist countries strengthen the indirect of effect of EPRI on ELOYALTY through ETRUST***

National culture is found to have a moderating effect overall on related relationships between satisfaction and loyalty. Research suggests collectivism strengthens the relationship between satisfaction and loyalty (Jin et al., 2008; Gracia et al., 2015; Peña-García et al., 2018). This study adopts a similar stance and contends national culture through collectivism has a moderating effect on the relationship between satisfaction and loyalty. Additional studies contend collectivist countries may exhibit higher levels of satisfaction due to a reluctance to complain (Liu & McClure, 2001) and a greater tendency to stay with service providers once satisfied to maintain social cohesion (Jin et al., 2008; Gracia et al., 2015; Peña-García et al., 2018). The study by Hoppner et al. (2015) finds Japan as a collectivist country to exert a stronger influence on the relationship between equivalence reciprocity and relationship quality (comprising of satisfaction, commitment and conflict) in comparison to the US (a more individualistic country). This suggests reciprocal exchanges related to satisfaction may be more stronger in collectivist countries due to the inherent role of reciprocity as part of the cultural fabric emerging from social norms and expectations. Customers may value e-tailer investments more strongly in collectivist countries and hence more likely to reciprocate based on cultural norms and mutually beneficial outcomes. This relationship could be further strengthened from a reluctance of customers to leave satisfying relationships to maintain social ties.

The following hypothesis is therefore suggested:

***H11b Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through ERS***

Although little evidence exists on the impact of culture on affective commitment in the e-tailing literature, the wider literature emphasizes higher levels of affective commitment in collectivist countries (Randall, 1993; Fischer & Mansell, 2009; Ozdemir & Hewett, 2010; Meyer et al., 2012). According to Ozdemir (2010), relationships are emphasized more in collectivist countries due to in-group practices and co-operative behaviours suggesting more relevance to affective commitment. The study by Samaha et al. (2014) further contends, collectivist countries are more interested in long term social bonding and relationship duration, which could reflect a greater willingness to continue the relationship. This study puts forward the argument consumers in collectivist countries may value investments made by e-tailers more due to a greater reliance on harmonious relationships and social bonds. This may additionally signal a greater willingness of customers in collectivist countries to continue the relationship over a longer period of time and develop stronger social ties. Consumers are therefore more likely to reciprocate co-operative behaviours and reward positive e-tailer investments with loyalty. This relationship could be further strengthened by an inclination to form longer term social bonds from customers in collectivist countries. The following hypotheses are suggested in line with this:

***H11c Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through EAC***

### **3.4 Summary**

This chapter provides a developed conceptual model and eleven overall hypotheses (including sub hypotheses) to address the main research question. The first section highlights research gaps identified from a review of the literature conducted in Chapter two. This provides a foundation for the development of the conceptual model visually presented with an overview of its construction. Path relationships are detailed in relation to the conceptual model. Following on from this hypotheses are detailed with a rationale for their development. Hypotheses H1, H2 and H3 focus on direct path relationships involving EPRI. Hypotheses H4, H5 and H6 highlight direct path relationships involving the main outcome variable ELOYALTY. Interrelationships between ETRUST, ERS and EAC are emphasized in hypotheses H7 and H8. Finally moderating effects of consumer cosmopolitanism, product category involvement and national culture are represented respectively through hypotheses H9abc, H10a<sub>1</sub>a<sub>2</sub>bc and H11abc (including sub hypotheses indicated by letters ‘abc’).

## **CHAPTER FOUR**

### **4.0 METHODOLOGY**

#### **4.1 Introduction**

This chapter focuses on the methods used to investigate the effects of investments made by e-tailers towards relationship quality and online loyalty from a multi-country and multi-sectoral perspective. The first section explores the research philosophy underpinning the study giving direction to the research design. The research design is explored in more depth in the second section alongside ethical considerations with a discussion on key strengths and limitations. Following on from this key issues concerning international research are examined alongside the impact of cultural bias. The next section details the development of the questionnaire and specifically provides a rationale for the construct measures. Survey implementation is then examined focusing on the three phases of development used in this study; pre-testing, pilot study and formal survey implementation. Finally the chapter provides a discussion of the sampling plan, sampling population and size, concluding with a chapter summary.

#### **4.2 Research Philosophy**

The research philosophy emerges from a positivist ontology and objectivist epistemology where social facts have an objective reality and are detectable in the real world (Yilmaz, 2013; Antwi & Hamza, 2015). The hypotheses developed in Chapter three are designed to examine causal relationships between key constructs that are able to be operationalised and measured (Malhotra et al., 2003). This allows generalisations to be made by testing propositions using a highly structured methodology, identifying universal rules and laws to predict future consumer behaviour based on current attitudes towards loyalty, hence

indicating a deductive approach (Crotty, 1998; Antwi & Hamza, 2015; Saunders et al., 2015). Therefore, the use of empirical data and statistical analysis to detect patterns and make generalizations align well with this research philosophy informing the methodological approach of the study (Deshpande, 1983; Sobh & Perry, 2006).

### **4.3 Research Design**

The research design focuses on providing empirical evidence on the attitudes and purchase intention behaviour of online shoppers in China, India, UK and US to examine causal relationships between key constructs. Following a more pragmatic and systematic approach in drawing conclusions from the data, this study adopts a quantitative research design (Yilmaz, 2013; Hair et al., 2015). The inclusion of a large sample size (1010) and analysis across four countries and two sectors, facilitates the identification and analysis of statistical patterns in forming generalizations across the datasets.

Data is collected through a cross-sectional online survey consisting of questions employing a 7-point Likert rating scale to facilitate a comparative analysis using an online consumer panel. The use of a cross-sectional design is employed examining the attitudes towards purchase intention at a particular point in time as opposed to a longitudinal design which would require examination at multiple points over time (Churchill & Iacobucci, 2006). Given the practical limitations of conducting a longitudinal study in terms of time and budget, smaller sample sizes and restrictive representation of the population, this design was not considered feasible and hence a cross-sectional design is employed (Podsakoff, 2003; Churchill & Iacobucci, 2006; Rindfleisch et al., 2008). Respondents self-selected from predetermined responses set by the researcher and completed the survey online limiting researcher involvement. The choice of this data collection



instrument and quantitative research design align well with the positivist and objectivist philosophical paradigm discussed previously.

A number of options were considered including postal, email and telephone questionnaires but were deemed unsuitable due to their inefficiencies in facilitating the collection of a large amount of data within a short period of time and across various countries. Postal surveys in particular would prove extremely costly given the number of participants needed for the study both in terms of printing and postage. Costs would be further exacerbated by international mailing costs (Couper, 2000; McDonald & Adam, 2003; Evans & Mathur, 2005). Telephone questionnaires would be extremely time consuming due to the length of the survey itself and again in reaching completion rates (Hulland et al., 2018). Further complications could easily arise from conducting research in an international setting and would either require all English speaking respondents or trained translators to conduct the interviews. The use of e-mail questionnaires (either as embedded files or attachments), also presents issues with length and size of file that could be used and would require respondents to have compatible software which may vary internationally. While research has shown online surveys to generally demonstrate low response rates compared to physical paper survey (Fan & Yan, 2010) this method has been selected to compensate for lower costs and faster responses (Wright, 2005; Hewson, 2014; Brace, 2018). Additional advantages of using online surveys include minimising data entry errors and the rapid availability of responses and data (Hewson, 2014; Brace, 2018).

The online survey was hosted by a market research firm (Qualtrics) and distributed through a third party panel provider (Lucid Federated Sample). Using a specialist research firm provides access to suitable respondents in China, India, UK and US which

otherwise may have been more difficult to reach. This approach facilitated better completion rates as respondents were provided with incentives from the research firm (Comley, 2008; Cameron & Molina, 2011). Studies have shown the use of market research firms to reduce the risks of multi-country studies. This has been attributed to their access to relevant respondents alongside specific local knowledge, technical expertise and experience of conducting research in multiple countries (Harzing et al., 2013; Neelankavil, 2015).

A large sample size (1010) was obtained through the use of an online consumer panel and online survey producing a substantial dataset for analysis. A total of 1407 responses were collected with an overall number of 1010 usable responses after data cleaning. The large sample size ensures the performance of rigorous statistical analysis and the ability to provide robust validity for the proposed models and causality of relationships (Goertz & Mahoney, 2012; Byrne, 2016). The adoption of Structural Equation Modelling (SEM) aligns itself well with the research design as a large sample technique (Kline, 2016). Further analysis is conducted focusing on conditional process analysis (moderated mediation) involving moderators of consumer cosmopolitanism, product category involvement and national culture (Hayes, 2018).

The inclusion of four countries and two sectors and the use of a large sample size provides for a robust research design. The use of ten datasets for cross-validation will help provide a deeper understanding of complex constructs and further insight into this topic (Hulland et al., 2018). It will allow for any inconsistencies in the datasets to be more easily recognised and the large sample size will provide more comprehensive data for analysis (Rowley, 2014; Kumar, 2016). This should increase the validity of the research by cross-verifying the same theoretical constructs across the four different countries and two

sectors and strengthen the credibility of this study and the robustness of the research design.

#### **4.3.1 Ethical Considerations**

Ethical issues have been considered and adhere to the University of Roehampton's code of conduct. The study is based around non-probability sampling as elements in the population cannot individually be identified. Informed consent was obtained before the survey was administered and a disclaimer presented to respondents providing details of the study (see Appendix C and D). This was available for participants to download and print off a hard copy. By accessing the survey respondents were deemed to have given consent. To further ensure valid consent, participants had the option not to participate and were presented with the ability to remove themselves at any point from the process. Only participants 18 years of age and above were invited to take part and were further required to confirm their age once access was given to the questionnaire. Participants below this age were not invited to take part, to ensure the exclusion of vulnerable participants from this study.

All respondents were ensured anonymity and had access to the questionnaire in an online safe and secure environment. Data has been collected and stored in accordance with the Data Protection Act (1998) and participants were informed of data storage and usage issues. Agreements were obtained from Qualtrics to ensure ethical issues were considered and addressed. To further enhance the integrity and reliability of the study, the selection of Qualtrics was based on their experience in the field and reputation in the industry. Monitoring was undertaken to ensure appropriate professional guidelines were followed reflecting the University of Roehampton's own code of conduct as well as industry guidelines.

#### **4.4 Issues in International Research**

The two key issues in international research are based on bias and equivalence (Steenkamp, 2001; Douglas & Craig, 2007; Harzing et al., 2013). A number of studies argue that issues concerning bias and equivalence are not adequately addressed in the literature and there is a requirement to address these concerns more broadly incorporating both conceptual and measurement approaches (Malhotra. et al., 1996; Van Herk et al., 2005; Harzing et al., 2013). To address these concerns this study examines bias and construct equivalence from a pre-data and post-data perspective. The pre-data perspective focuses on the development of the research instrument and design before data collection and is discussed within this chapter. It focuses on bias related to culture and social desirability and further examines construct equivalence in terms of conceptual and measurement (calibration, translation) equivalence. The post-data view examines these issues within the data analysis chapters and examines construct equivalence through unidimensionality, reliability, validity and invariance tests incorporating the features of Structural Equation Modelling (SEM).

##### **4.4.1 Cultural Bias**

Studies have suggested conducting research across different and diverse countries could include cultural bias with data collection (Harzing et al., 2013). The attitudes of individual online shoppers which is pivotal to this study, may be subject to influence from wider cultural and socio-economic norms existing in each country. Research has further shown issues with international market research centred on potential problems in data interpretation based on response patterns (Baumgartner & Steenkamp, 2001; Dolnicar & Grün, 2007). The utilisation of an online survey comprising of a 7- point Likert scale could be affected by cultural bias based on response patterns. Some studies

argue respondents may display differing response patterns using Likert scale questions, based on established systematic tendencies stemming from cultural influences rather than on the actual content of questionnaire items (Harzing, 2006). Thus, affecting the robustness of conclusions drawn from the empirical data (Heide & Gronhaug, 1992; Clarke III, 2001; Johnson et al., 2005).

The main response styles commonly discussed in the literature (Baumgartner & Steenkamp, 2001; Johnson et al., 2005; Harzing et al., 2013) include;

- (i) Extreme response style (ERS) - tendency to use the endpoints of a scale
- (ii) Acquiescence response style (ARS) –tendency to agree
- (iii) Disacquiescence response style (DRS) – tendency to disagree and
- (iv) Middle response style (MRS) – tendency to use middle responses on the scale.

Some studies argue individualist countries exhibit higher levels of ERS and DRS where consumers may have a stronger focus on expressing individual opinions (Johnson et al., 2005) and feel less pressure to conform (Harzing, 2006). Studies also argue collectivist countries tend to exhibit higher levels of ARS and MRS where consumers seek harmony through conformity (Harzing et al., 2013). Consumers in these countries therefore tend to use middle points of the scale ‘playing safe’ (Sin et al., 1999) or more positive end points (Van Herk et al., 2005).

#### **4.4.2 Social Desirability Bias**

A number of studies have shown social desirability as another form of bias that could affect international research and impact the validity of research findings (Nederhof, 1985; Johnson & Van de Vijver, 2003). This type of bias focuses on respondents answering questions in a more socially desirable manner rather than providing an accurate reflection

of their responses. Whilst most studies conceptualise social desirability bias as a unidimensional construct (Crowne & Marlowe, 1960; Reynolds, 1982) other studies view social desirability bias as a multi-dimensional variable comprising of self-deceptive enhancement and impression management (Paulhus, 1984; Blasberg et al., 2014; Kim & Kim, 2016). Self-deceptive enhancement bases itself around answers that the respondent believes to be true although they may not be (inflated opinion), whereas impression management bases itself around answers the respondent knows not to be true but are considered socially acceptable (Barrick & Mount, 1996; Kim & Kim, 2016). Responses in both cases reflect the respondents desire to appear more positive conforming to social norms (Jum, 1978; Fisher & Katz, 2000; Bernardi, 2006). Some studies argue there is a case for operationalising social desirability bias as a bi-dimensional construct as it may give different results for each component of self-deceptive enhancement and impression management (Perinelli & Gremigni, 2016).

Studies have further shown the impact of culture on social desirability bias and suggest bias will differ between countries due to varying influences on social norms within a cultural context (Bernardi, 2006; Lalwani et al., 2009). According to Kim and Kim (2016), collectivist countries tend to show stronger and more consistent bias than individualistic countries for self-reported measures. This is further supported by other studies which contend respondents will answer more positively to better fit in with the social group engaging in impressions management (Bernardi, 2006; Lalwani et al., 2009). Further studies have associated social desirability bias specifically with the use of Likert scales identifying vulnerabilities in their use where respondents may answer in more socially acceptable ways and so distorting the accuracy of the data (Zerbe & Paulhus, 1987; Fisher & Katz, 2000). With regard to this study respondents in China and India

could potentially respond more favourably coming from a collectivist society compared to the more individualistic countries of the UK and US.

#### **4.4.3 Addressing Bias Issues**

A number of measures were incorporated into this study to address issues with cultural and social desirability bias to minimize their impact, including the use of a 7- point Likert scale, text labelling and adoption of an online survey. This study adopts a seven point Likert scale using forced responses. The effect of the number of response options on ERS is varied. Some studies have shown the number of response options as having no effect on ERS (Kieruj & Moors, 2010). However, other studies have shown that longer scales decrease the effect of extreme responding and seven point scales are more effective at this compared to three and four point scales (Clarke III, 2001; Weijters et al., 2010a). The use of longer scales is further supported in cross cultural studies (Harzing et al., 2006) and hence this study adopts the latter positioning and utilises a longer 7- point scale.

Text labelling of endpoints are used, with the middle sections using numeric anchors as opposed to fully text labelling all response options. Although fully labelling all response options has been argued to reduce ERS and could improve reliability and validity through clearer identification of response options (Moors et al., 2014), it could also increase ARS. According to Weijters et al. (2010b), only using labelled endpoints for a 7-point scale may be better for studies based on relating variables and estimating linear relations as in SEM, as scales conform better to linear models. Furthermore, participants involved in online consumer panels are assumed to be familiar with online surveys and the use of text labelled endpoints (Callegaro et al., 2014a). The use of text labelling endpoints is therefore adopted given the SEM approach and assumed experience of respondents with online surveys.

The mode of data collection has been shown in a number of studies to have an impact on response styles. This study employs an online survey where respondents are able to fill in the survey online through any digital device that allows access to the internet, via an e-mail invitation containing a link to the main survey. Studies have shown online web surveys tend to result in lower ARS and ERS compared to telephone surveys and pen and pencil surveys (Couper, 2000; Brace, 2018). This could partly be attributed to the relative anonymity and ease of use using the internet where respondents are free to give answers anonymously with limited if any human interaction or possible interviewer bias. Respondents were able to complete the survey at a convenient time and location to themselves thereby reducing the cognitive load and ARS (Knowles & Condon, 1999; Van Vaerenbergh & Thomas, 2012). According to some studies higher levels of ARS are associated with higher cognitive loads where multiple pressures occur on respondents (Van Vaerenbergh & Thomas, 2012). These could include pressures of time, conformity, environment or interaction. Additionally the Crowne and Marlowe 13-item social desirability scale was included to test for any issues regarding social desirability (Crowne & Marlowe, 1960; Reynolds, 1982).

## **4.5 Questionnaire Design**

### **4.5.1 Response Format**

The questionnaire is designed as an online survey where respondents were invited to complete the survey over the internet using an online format. Questions were displayed on a screen and respondents were able to select their answer using their access device (laptop, computer, mobile or tablet). The response format of the questionnaire primarily consists of (closed pre-coded) fixed response multiple choice questions. This format facilitates greater efficiency in terms of time as respondents need only to select an option



from a range of alternatives (Yilmaz, 2013; Hair et al., 2015). It further allows more effective statistical analysis through the standardisation of data made available through this format (Kumar, 2016). In addition as it was assumed a number of respondents would complete the survey through mobile devices, this format is considered more appropriate for smaller screens adding to its suitability for this study (Sue & Ritter, 2011). To address the limitations of using fixed response formats throughout the questionnaire, some open-ended questions were included for respondents to give their views and experiences of shopping online which may not have been captured by the pre-determined selections. These options have been included to provide insight into future areas for research rather than to specifically address the proposed hypotheses.

#### **4.5.2 Order of Questions**

The order of questions are set in a particular sequence to ensure a good flow and logical journey for respondents. The welcome screen contains information regarding the study in line with ethical guidelines and allows respondents to consent to participate and access the main part of the questionnaire. The first part of the survey includes screening questions to ensure the correct sample population engaged in the survey and to introduce opening questions to relax respondents (Neuman, 2013). Respondents were only allowed to proceed to the next section if they had; more than six months online shopping experience and experience of online shopping for clothing and electronic products within the last year. The second section of the survey contains items relating to construct measures for the clothing sector. This was then followed by the third section examining consumer cosmopolitanism and was purposefully placed in the middle of the survey to prevent survey fatigue. The next section repeats the same questions relating to construct measures but for the electrical sector. The following section contains the Crowne &

Marlowe 13-item Social Desirability Scale and includes bipolar true/false based questions (Crowne & Marlowe, 1960; Reynolds, 1982). The last section includes demographic items regarding age, gender, employment, income and education. Sections of income and education contain pre-selected choices according to individual country standards for greater relevance and understanding to respondents ensuring calibration equivalence. Calibration equivalence reflects the equivalence of measures across countries to facilitate a meaningful comparison (Steenkamp, 2001; Hult et al., 2008; Neelankavil, 2015). Income levels are categorised into five levels and relate to quintile income distributions in each country. Education levels are categorised into five levels according to the Organisation for Economic Co-operation and Development (OECD) global education guidelines and were based on primary, secondary and tertiary levels (OECD, European Union, UNESCO Institute for Statistics, 2015). The survey contains a variety of vertical and matrix based formats to make the survey more engaging. The online survey further includes a progress bar so respondents could identify their progress. Instructions are given at various stages and the wording throughout was checked for consistency. Forced responses are used to avoid issues with missing data and the length of the survey was determined as an average of 20 min. Although response rates were not an issue due to the use of incentives, the survey is designed to reduce survey fatigue (Hulland et al., 2018).

#### **4.6 Construct Measures**

Existing measures based on self-reporting scales are used from previous studies given their proven reliability with slight modifications and are discussed in more detail in the following sections.

#### **4.6.1 ELOYALTY (Online Loyalty)**

ELOYALTY is measured in terms of repurchase intention and recommendations (Zeithaml, et al., 1996). The 5-item scale has been adapted where respondents are asked to identify their favourite online clothing/electrical retailer (website) where they buy from frequently (see Table 4.1). Responses are based on their likelihood of following certain actions on a 7-point Likert scale ranging from (1 = Not at all likely to 7 = Very likely).

A number of studies have adapted customer loyalty instruments to measure online loyalty. According to Valvi and Fragkos (2012), two of the most conceptually influential instruments that have been adapted and dominate the online loyalty literature include those devised by Zeithaml et al. (1996) and Oliver (1999). The 5-item instrument developed by Zeithaml et al. (1996) focuses on behavioural intentions and focuses on the impact of service quality on loyalty and trust and has been adapted successfully in a number of online loyalty studies (Gefen, 2002; Srinivasan et al., 2002; Parasuraman et al., 2005). Furthermore this scale demonstrates strong internal consistency with Cronbach alpha values well above the 0.7 threshold of  $\alpha = 0.93$  to  $\alpha = 0.94$  across the four companies used in the study. The instrument developed by Oliver (1999) focuses on four different stages of loyalty rather than just one with 4-items for each stage and has tended to be adopted in studies focusing on the development of loyalty at different stages (Harris & Goode, 2004). The 5-item Zeithaml et al. (1996) instrument places a greater emphasis on intentions and emotions rather than behavioural outcomes. For the purpose of this study the 5-item Zeithaml et al. (1996) instrument has been adapted as it incorporates both repurchase intentions and word-of-mouth aspects providing a more balanced insight into online loyalty.

**Table 4.1 Scale items measuring the ELOYALTY Construct**

Construct	Anchors	Measurement Items	Source
ELOYALTY	1- <i>Not all all likely</i> , 7- <i>Extremely Likely</i>	Thinking about this clothing/electrical website please answer the following questions. How likely is it that you would :  1 Consider it my first choice to buy clothes/electrical products? 2 Encourage friends and relatives to buy clothes/electrical products from it ? 3 Recommend it to someone who seeks your advice ? 4 Say positive things about it to other people? 5 Purchase more clothes/electrical products from it in the future ?	Adapted from Zeithaml et al.(1996)
<i>Original terms 'XYZ' (Zeithaml et al. 1996), adapted to 'clothes' and 'electrical products'</i>			

#### 4.6.2 EPRI (Online Perceived Relationship Investment)

An adapted version of the De Wulf et al. (2001) 3-item scale is used to measure EPRI as shown in Table 4.2. The scale measures consumers' perceptions of e-tailer efforts and investments in the relationship. Respondents are asked the extent to which they agree on statements relating to the clothing/electrical products website efforts to increase loyalty, efforts to improve ties with regular customers and care about keeping regular customers. A 7-point scale is used (1=Strongly Disagree to 7 = Strongly Agree). A fourth item has been incorporated into this section as an open-ended question to further clarify any e-tailer 'efforts' and to provide an understanding of respondents' understanding of online 'efforts'.

The use of perceived relationship investment as a construct has been adapted from an offline setting into an online setting with the predominant measurement scales emerging from a B2B setting primarily examining supplier relationships (Ganesan, 1994; Kumar et al., 1995; Smith & Barclay, 1997). The limited number of studies examining EPRI in a

an online consumer shopping environment have to date all adopted measures from the DeWulf et al. (2001) study indicating its popularity as a measurement tool (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013). It has further been adapted in studies related to other consumer areas including; finance (Liang et al., 2008), loyalty programmes (Mimouni-Chaabane & Volle, 2010) and social media (Popp et al., 2016). Given its focus on consumer relationships as compared to supplier relationships the items developed provide a more suitable measurement scale and justification for use in this study. Although the DeWulf et al. (2001) study does not examine consumer relationships in an online setting its adaptation can be supported given its similar focus in a retailing context. Additionally internal consistency is uniformly high across all three country samples (US, Netherlands and Belgium) with Cronbach alpha values ranging from  $\alpha = 0.70$  to  $\alpha = 0.93$ .

**Table: 4.2 Scale items measuring the E-PRI Construct**

Construct	Anchors	Measurement Items	Source
EPRI	<i>1- Strongly Disagree - 7 Strongly Agree</i>	Please read the following statements and choose one of the options.	De Wulf et al. (2001)
		1 This clothing/electrical website makes efforts to increase regular customers' loyalty.	
		2 This clothing /electrical website makes various efforts to improve its tie with regular customers.	
		3 This clothing/electrical website really cares about keeping regular customers.	
<i>Original terms 'apparel store' and 'superstore' (De Wulf et al., 2001) replaced with 'clothing website' and 'electrical website'</i>			

#### **4.6.3 RQ (Relationship Quality)**

Relationship quality is measured using individual dimensions of trust, satisfaction and commitment, as these are considered the most established measures of relationship quality in a retailing environment (Hennig-Thurau & Hansen, 2000; De Wulf et al., 2001; De Cannière et al., 2009; Qin et al., 2009). These measures have been adopted due to their focus on relationship factors as compared to measures in a B2B setting which tend to be more efficiency and performance focused (Lages et al., 2005). Other dimensions that have been used in retailing studies include; bonds (Lang & Colgate, 2003), conflict (Roberts et al., 2003) and communication (Keating et al., 2003). These have not been selected due to the general consensus in the literature that retail relationship quality comprises of trust, satisfaction and commitment (Athanasopoulou, 2009; Vesel & Zabkar, 2010). These dimensions are further examined individually to highlight the magnitude of each effect. For the purpose of this study the following dimensions are examined and the rationale for their use given in the subsequent section; ongoing online trust, online relationship satisfaction and online affective commitment.

#### **4.6.4 ETRUST (Ongoing Online Trust)**

ETRUST is measured through an adapted 4-item scale developed by Gefen (2000) that focuses on online ongoing trust in the relationship. A 7-point Likert scale is used ranging from (1= Strongly Disagree to 7 = Strongly Agree), to record responses (see Table 4.3). Items focus on the e-tailer mitigating risks and instilling confidence in the consumer. Trust is examined in terms of trustworthiness and the e-tailer making good if problems do arise. Additionally, trust is based on previous interactions as can be seen by item 4 ‘I am quite certain what to expect from this clothing/electrical website’. The majority of scales measuring online loyalty focus on initial trust and have been developed to address

issues of; consumer unfamiliarity with the website, lack of physical presence and attitudes towards the functionality of shopping online (payment, privacy, security and delivery), (McKnight et al., 2002; Eastlick & Lotz, 2011). Given the focus of this study is on repeated previous interactions with an e-tailer these scales are not as relevant and so have not been considered. A number of scales examining online trust focus on the performance and efficiency of the website (Bart et al., 2005; Mukherjee & Nath, 2007). Although developed for an online environment their focus lies on the functional aspects of website performance rather than the psychological relationships.

The 5-item scale developed by Bart et al. (2005) reflects dimensions of credibility in the website and pays particular attention to information and recommendations on the website. Similarly Mukherjee & Nath (2007) examine online trust as a multi-dimensional construct. The study by Mukherjee and Nath (2007), further examines propensity to trust (6-item scale), trust in internet technology (3-item scale) and confidence in website (3-item scale), derived from initial scales developed by Morgan and Hunt (1994) and Mukherjee and Nath (2003). Given these scales focus on website performance rather than psychological relationships have not been selected. The measurement scale employed in Gefen (2002), was developed for shoppers with prior experience and exhibited more focus on trust in the relationship, and so selected for this study. Cronbach alpha values were not given in the Gefen (2002) study. However a similar study using the same adapted 4-item scale displayed a high Cronbach alpha value  $\alpha = 0.85$  indicating good internal consistency (Kim et al., 2003).

**Table: 4.3 Scale items measuring the ETRUST Construct**

Construct	Anchors	Measurement Items	Source
ETRUST	<i>1- Strongly Disagree - 7 Strongly Agree</i>	1 Even if not monitored, I'd trust this clothing/electrical website to do the job right 2 I trust this clothing/electrical website 3 I believe that this clothing/electrical website is trustworthy 4 I am quite certain what to expect from this clothing/electrical website	Adpated from Gefen (2002)
<i>Original term 'Amazon.com' (Gefen, 2002) replaced with 'clothing website' and 'electrical website'</i>			

#### 4.6.5 ERS (Online Relationship Satisfaction)

Online relationship satisfaction is based on a 3-item scale initially developed by Crosby et al. (1990). While developed in an offline context focusing on supplier relationships it has successfully been adapted in a number of e-tailing studies (Szymanski & Hise, 2000; Jones & Suh, 2000; Rafiq et al., 2013). The scale uses three differential items commonly used to examine satisfaction and is based on 7-point scales including; 1=Very Dissatisfied to 7 = Very Satisfied, 1= Very Displeased to 7= Very Pleased and 1= Unfavourable to 7= Favourable. Items are based on how satisfied, pleased and how favourable respondents are in the relationship satisfaction with the e-tailer (see Table 4.4). Furthermore the Cronbach alpha is exceptionally high  $\alpha = 0.99$ , which could explain its popularity. Although conceptually diverse, online relationship satisfaction examines the satisfaction in the relationship with an e-tailer built up over cumulative exchanges. In contrast online satisfaction generally focuses on the experience of interacting with an e-tailer and can be either overall or transaction specific (Jones & Suh, 2000; Palmatier et al., 2006; Verma et al., 2016). Other scales examining overall satisfaction tend to be based on the shopping experience. For example, Shankar et al. (2003), adopts a 1-item 7-point Likert scale to examine overall satisfaction with a service provider both in an online and offline context



and Ghazali (2016) adopts a 3-item scale focusing on shopping experience. As these scales do not examine satisfaction in the relationship but satisfaction of the experience have not been selected. For the purpose of this study measurement scales directed at exploring online relationship satisfaction have been used to purposefully examine cumulative exchanges as the study focuses on the returning behaviour of consumers.

**Table: 4.4 Scale items measuring the ERS Construct**

Construct	Anchors	Measurement Items	Source
E-RS	<i>1-Very Dissatisfied - 7 -Very Satisfied</i>	1 How satisfied are you with the relationship you have had with your clothing/electrical products store website	Based on Crosby et al. (1990)
	<i>1- Very Displeased - 7- Very Pleased</i>	2 How pleased are you with the relationship you have had with your clothing store/electrical product website	
	<i>1- Unfavourable - 7- Favourable</i>	3 How favourably do you rate your relationship with your clothing store/electrical products website	
Original term 'salesperson' (Crosby et al., 1990) adpated to 'clothing store website' and 'electrical store website'			

#### 4.6.6 EAC (Online Affective Commitment)

Online affective commitment measures the emotional attachment of the respondent to the clothing e-tailer and is based on a 3-item scale modified from Fullerton's (2005) adaptation of Allen and Meyer's (1990) 8-item affective commitment scale (see Table 4.5). Respondents are asked to indicate the level of extent they feel emotionally attached, sense of identification and level of personal meaning towards the clothing and electrical e-tailer using a 7-point Likert scale (1= Strongly Disagree to 7= Strongly Agree). Although adapted within an offline retailing environment (Fullerton, 2005), there is evidence to support its use in an online environment (Rafiq et al., 2013). A number of scales examining affective commitment have focused on interpersonal relationships primarily in the services sector, due to the emotional nature of the construct examined

(Anderson & Weitz, 1992). The study by Shemwell et al. (1994) developed a 4-item, 7-point scale for the services sector that has been adapted in other studies (Mattila, 2006). Given this scale included items more relevant to personal interactions and used terms including ‘friendship’, was not considered suitable for this study. Although Walsh et al. (2010) developed a 4-point scale examining online and offline affective commitment in the retailing sector (media and travel agencies) adapted from Morgan and Hunt (1994) and Johnson and Grayson (2005), these items did not explicitly state the emotional attachment respondents had and focussed more on their level of commitment and so was not used. The adapted Fullerton (2005) 3-item scale selected, examines areas of emotion, identification and personal meaning. Additionally internal consistency was excellent with a Cronbach value of  $\alpha = 0.97$  (Fullerton, 2005).

**Table: 4.5 Scale items measuring the EAC Construct**

Construct	Anchors	Measurement Items	Source
EAC	<i>1- Strongly Disagree - 7 Strongly Agree</i>	Please read the following statements and choose one of the options.  1 I feel emotionally attached to my clothing/electrical website 2 I feel a strong sense of identification with my clothing/electrical website 3 My clothing/electrical website has a great deal of personal meaning for me.	Based on Allen and Meyer (1990); Fullerton (2005)
<i>Original term 'organisation' (Allen &amp; Meyer, 1990) adapted to 'clothing website' and 'electrical website'. Full 8 item scale reduced to 3 items(Fullerton 2005)</i>			

#### **4.6.7 Consumer Cosmopolitanism**

Consumer cosmopolitanism is measured using a 12-point scale developed by Riefler et al. (2012), see Table 4.6. This is based around 3 key dimensions each comprising of 4 items; open mindedness, diversity appreciation and consumption transcending borders. Unlike other cosmopolitan scales the Riefler et al. (2012) C-COSMO scale is more consumer focused and includes items related to attitudes towards foreign products. Additionally it is argued to be more psychometrically robust (Riefler & Diamantopoulos, 2009; Riefler et al., 2012). Respondents are asked to what extent they agree with the 12 consumer cosmopolitan statements using a 7-point Likert scale (1= Strongly Disagree to 7= Strongly Agree). Scales examining consumer cosmopolitanism are limited in the marketing literature and only two exist of notable mention; The CYMYC scale (Cannon & Yaprak, 1993) and COS scale (Cleveland & Laroche, 2007). The CYMYC scale (Doney et al., 1998; Cannon & Yaprak, 2002) is one of the first scales to operationalize consumer cosmopolitanism for marketing based studies. This 24-item scale examines consumer cosmopolitanism around four 'conceptual dimensions of cosmopolitan behaviour; search and evaluation of decision related information, organizational cosmopolitanism, communication behaviour and hunger for diversity alongside a 7-item scale for measuring consumer ethnocentrism CETSCALE (Shimp & Sharma, 1987). Although some overlap occurs with the C-COSMO scale in terms of 'open mindedness' and 'consumption transcending borders', there are no direct items relating foreign product attitudes. Although the CETSCALE examines attitudes towards foreign products it is aimed at measuring consumer ethnocentrism rather than consumer cosmopolitanism and so does not conceptually comply with this study. In addition Dogan and Yaprak (2017) argue that consumer cosmopolitanism and consumer ethnocentrism affect attitudes towards foreign product differently. In relation to the CYMC scale, a number of studies

argue the lack of adoption of this scale is due to a number of issues including; poor construct validity, unclear dimensionality and low internal consistency ( $\alpha = 0.57$ ), (Riefler & Diamantopoulos, 2009; Cleveland et al., 2014).

The COS scale (Cleveland & Laroche 2007) has been used more frequently in international studies. However, although some items relate to the Riefler et al. (2012) C-COSMO scale in terms of ‘open mindedness’, it does not specifically cover attitudes towards foreign products and so less relevant to this study. Additionally, issues with this scale have been highlighted with regard to unclear conceptual definitions and scale development processes (Riefler et al., 2012). Similarly to the CYMYC scale a lack of clear conceptual definitions leads to important psychometric properties omitted from the scale. In terms of scale development key validity tests are not reported (composite reliability (CR), average variance extracted (AVE), which could impact replication alongside varying item use in different studies. The Riefler et al. (2012) C-COSMO scale has therefore been adopted due to its broad conceptualisation and clear involvement items directly relating to foreign product attractiveness. Furthermore strong internal consistency is shown across all 3 areas with Cronbach alpha values ranging from 0.78 to 0.87 (open mindedness  $\alpha = 0.87$ , diversity appreciation  $\alpha = 0.78$  and consumption transcending borders  $\alpha = 0.84$ ).

**Table: 4.6 Scale items measuring the Consumer Cosmopolitanism Construct (C-COSMO Scale)**

Construct	Anchors	Code No.	Measurement Items	Source
<b>Consumer Cosmopolitanism</b>			<i>Please read the following statements and choose one of the options.</i>	Riefler et al. (2012)
<b>Open-mindedness</b>	<i>1- Strongly Disagree - 7 Strongly Agree</i>	C1	1 When travelling I make a conscious effort to get in touch with the local culture and traditions	
		C2	2 I like having the opportunity to meet people from many different countries	
		C3	3 I like to have contact with people from different cultures	
		C4	4 I have got a real interest in other countries	
<b>Diversity appreciation</b>	<i>1- Strongly Disagree - 7 Strongly Agree</i>	C5	5 Having access to products coming from many different countries is valuable to me	
		C6	6 The availability of foreign products in the domestic market provides valuable diversity	
		C7	7 I enjoy being offered a wide range of products coming from various countries	
		C8	8 Always buying the same local products becomes boring over time	
<b>Consumption transcending borders</b>	<i>1- Strongly Disagree - 7 Strongly Agree</i>	C9	9 I like watching movies from different cultures	
		C10	10 I like to listen to music of other cultures	
		C11	11 I like trying original dishes from other countries	
		C12	12 I like trying out things that are consumed elsewhere in the world	

#### 4.6.8 National Culture

National culture is measured along Hofstede's cultural dimensions with the countries in this study examined in terms of their levels of individualism and so is the only construct not to use a self-reported measure (Hofstede 1983, 2001). The UK and US score high on individualism (scores of 89 and 91 respectively) whereas China and India score lower (scores of 20 and 48) and hence are considered more as a collectivist societies ((Hofstede, 1983, 2001). Although originally based in an organisational setting (IBM employees) it has widely been adopted in consumer research and is the most used national culture framework. Its popularity is further highlighted in in international studies examining online consumers in an e-tailing setting (Pavlou & Chai, 2002; Cyr, 2013; Elbeltagi & Agag, 2016; Frassetto et al., 2017; Peña-García et al., 2018). A range of other frameworks

examining national culture have also been used in a number of international consumer related studies. The study by Schwartz (1994) originally developed a 57-item scale based on basic human values which was further refined to a 19-item factor model (Schwartz et al., 2012). While this scale has more focus on psychological values and includes a broader range of items not solely examining work related items has not been adopted widely in the marketing literature (Lenartowicz et al., 2003). The classification of countries according to Fukuyama (1995) is based on high and low trust countries and Hall (1993) distinguishes countries in terms of high and low context. While these frameworks have been used in international e-tailing studies their inclusion has been limited (Cyr, 2013). Furthermore given their single dimension perspective are more narrow in their conceptualisation of culture and so not adopted for this study which adopts a broader perspective.

A more recent classification examining culture has been developed by the GLOBE project (which consists of 170 academic researchers across 61 countries with 17,300 middle managers). This builds on the cultural dimensions identified by Hofstede and adds further dimensions to provide a more developed framework with more current country data (House et al., 2004). Recent additions include; performance orientation, assertiveness, future orientation, human orientation, institutional collectivism, family collectivism and gender egalitarianism. Using this framework countries are grouped across three classifications rather than two. The UK and US appear in the Anglo-Saxon cluster, India in the South Asia cluster and China in the Confucian cluster. However, given one of the aims of this study is to compare relationships with previous studies particularly with trust, satisfaction, commitment and loyalty, the Hofstede cultural dimensions framework is deemed more suitable. Furthermore while a number of studies in the e-tailing and online

loyalty literature focus on individualism and collectivism, comparisons are more readily able to be made on this particular dimension. Although a range of six dimensions are available through Hofstede's framework, the dimensions of individualism and collectivism are purposefully selected to reflect opposing cultural differences across East (China and India) and West (UK and US) divisions. This single dimension is solely included to provide a single conceptualisation of National Culture reducing the complexity of the study and allowing meaningful comparisons to be made. Furthermore, the omission of the GLOBE study (House et al., 2004), classification additionally simplifies the study facilitating comparisons across two classifications rather than three.

Furthermore while a number of studies in the e-tailing and online loyalty literature focus on individualism and collectivism comparisons are more readily able to be made. Additionally comparisons are across two classifications rather than three reducing the complexity of the study.

#### **4.6.9 Product Category Involvement**

Product category involvement is measured using a modified version of the 3-item, 7-point scale adopted by De Wulf et al. (2001) examining the level of product category involvement in the clothing and electrical sector (see Table 4.7). Items are based on gauging the level of interest, importance and meaning to consumers regarding the clothes they wear and electrical products they purchase, thereby indicating the level of individual involvement in each of these sectors. Respondents are asked to reply using a 7-point Likert scale (1= Strongly Disagree to 7= Strongly Agree). Cronbach alpha values were not available in the De Wulf et al. (2001) study. However internal consistency was shown to be strong in a similar study using the same 3-item scale, exhibiting a Cronbach alpha value  $\alpha = 0.92$  (Van den Brink et al., 2006).

A range of scales have been developed over the years to examine involvement, primarily in response for calls to develop more robust measures of this construct (Zaichkowsky, 1985; Laurent & Kapferer, 1985; Mittal, 1995). A popular scale used in the literature is the personal involvement inventory (PII) scale developed by Zaichowsky (1985) and is based on a bipolar adjective 20- item scale that has been adapted in a number of online studies (Liang et al., 2008; Akhter, 2014). Although the internal consistency of this scale is very strong with high Cronbach alpha values  $\alpha = 0.97$ ,  $\alpha = 0.99$  and  $\alpha = 0.97$  across 3 categories of instant coffee, colour television and laundry detergent, its complexity would incur implementation issues in terms of extending the questionnaire length affecting completion times and presents problems in terms of translation equivalence. Although revised versions of the scale have been developed including a reduced 10-item scale (Zaichkowsky, 1994) and a reduced 14-item version (McQuarrie & Munson, 1987), issues surrounding the correct translation of the adjectives used in the scale and meaning across four countries could be problematic.

**Table: 4.7 Scale items measuring Product Category Involvement**

Construct	Anchors	Measurement Items	Source
Involvement	<i>I- Strongly Disagree - 7 Strongly Agree</i>	<p>The next 3 questions are based on your personal attitudes towards clothing and electrical products. Please choose the statement that most closely applies to you.</p> <p>1 Generally, I am someone who finds it important what clothes/electrical products he or she buys.</p> <p>2 Generally, I am someone who is interested in the kind of clothing/electrical products he or she buys.</p> <p>3 Generally, I am someone for whom it means a lot what clothes/electrical products he or she buys</p>	DeWulf et al (2001).
<i>Original term 'apparel and 'food' (De Wulf et al., 2000) replaced with 'clothing' and 'electrical products'</i>			



**4.6.10 Social Desirability Bias Scale**

Social desirability bias is measured using a 13-item shortened version of the original 33-item Marlowe Crowne Social Desirability scale (MCSD) (Crowne & Marlowe, 1960), adapted by Reynolds (1982), see Table 4.8. The inclusion of such a scale has been employed to essentially reveal the impact of social desirability bias and to adjust the data if required to improve the accuracy of the analysis (Paulhus, 1984; Nederhof, 1985; Johnson, & Van de Vijver, 2003). The original 33-item MCSD scale (Crowne and Marlowe 1960, 1964) and its shorter versions (Strahan & Gerbasi, 1972; Reynolds, 1982; Ballard, 1992) have widely been adopted in a number of studies reflecting the importance of the measures used to identify social desirability bias (Johnson & Van de Vijver, 2003). Other scales have been developed to examine social desirability bias including Edwards SD scale (1972) which include measures based on a unidimensional conceptualisation of the social desirability bias construct. More multi-dimensional focused scales have been developed including the 40-item Balanced Inventory of Desirability Responding scale (BIDR), a 7-point Likert scale (Paulhus & Reid, 1991) which has specific measures for self-deception (20 items) and impression management (20 items). Additionally, the 20-item Bidimensional Impression Management System (BIMI) which uses a 7-point Likert scale has been developed, primarily focusing on impression management (Blasberg et al., 2014). The Marlowe Crowne MCSDS scale including its shortened versions is the most commonly used scale used in the marketing literature (Steenkamp et al., 2010). Interestingly, this trend is however inverted in the psychology field where the IM scale of the BIDR is now the most widely adopted scale to measure SDB (Lambert et al., 2016).

There is passionate debate in the literature as to the theoretical and conceptual understandings of social desirability bias and hence the most appropriate scales to measure this bias (Barger, 2002; Beretvas et al., 2002; Steenkamp et al., 2010). This study has adopted the use of the MCSDS to identify respondents who may be considered ‘fakers’ due to their inaccurate responses and to adjust the data accordingly rather than ignore it. In a recent comparison of the scales the MCSDS outperformed the BIDR in terms of identifying ‘fakers’ (Lambert et al., 2016). Furthermore the shortened version of the 13-item MCSDS addresses practical limitations of using the 40-item BIDR scale avoiding respondent fatigue and includes a dichotomous true false coding system rather than the 7-point Likert scale which is considered more favourable (Loo & Thorpe, 2000; Gignac, 2013). A more commonly used shorter version involves the scale developed by Reynolds (1982) which consists of Form A, B and C comprising of 11, 12 and 13 items respectively. Internal consistency is generally found to be favourable with Form C, exhibiting Cronbach alpha values of  $\alpha = 0.74$ ,  $\alpha = 0.75$  and  $\alpha = 0.76$  respectively.

**Table: 4.8 Scale items measuring Social Desirability Bias Based on Reynold (1982) Form C**

Construct	Anchors	Measurement Items	Source
Social Desirability Bias	TRUE/FALSE	<i>That is the end of the section. Please read the following statements and answer either True or False.</i>	Adapted from Marlowe & Crowne (MCSD)
		1 I sometimes feel resentful when I don't get my way	Social Desirability Scale - 33 items
		2 On a few occasions, I have given up doing something because I thought too little of my ability	
		3 There have been times when I felt like rebelling against people in authority even though I knew it wouldn't get me anywhere	Crowne & Marlowe (1960, 1964)
		4 No matter who I'm talking to, I'm always a good listener	Short form from Reynolds
		5 I can remember "playing sick" to get out of something	(1982), Form C - 13 items
		6 There have been occasions when I took advantage of someone	
		7 I'm always willing to admit it when I make a mistake	
		8 I sometimes try to get even, rather than forgive and forget	
		9 I am always courteous, even to people who are disagreeable	
		10 I have never been annoyed when people expressed ideas very different from my own	
		11 There have been times when I was quite jealous of the good fortune of others	
		12 I am sometimes irritated by people who ask favours of me	
		13 I have never deliberately said something that hurt someone's feeling	

Original term 'irked' replaced with 'irritated' (12) and 'annoyed' (10) after feedback from pilot study.

The items are based on a set of true-false statements designed to evaluate individual personality traits. In response to the pre-test, two items were adapted to address confusion with the term 'irked' used in item 10 and item 12. These were replaced with 'annoyed' (item 10) and 'irritated' (item 12). This highlights a criticism of the MCSDS using outdated wording (Beretvas et al., 2002).

## **4.7 Sampling Plan**

### **4.7.1 Sampling Population**

The use of an online consumer panel provider was purposefully employed to ensure realistic and timely data collection from consumers in four key retail e-commerce markets namely China, India, UK and US. The target population is online shoppers aged over 18, that have experience of repeat visits to a particular clothing and electrical e-tailer. This population is further refined by ensuring they have had experience of more than 6 months shopping online and have visited their specific e-tailer sites within the last year. Given the context of the subject matter it is assumed respondents have access and experience of using the internet and so knowledgeable in accessing and using online surveys. This also addresses a key concern with online consumer panels regarding sample bias, where some studies argue online consumer panels are not fully representative of the general population and may show a greater proportion of respondents with internet access (Baker & Downes-Le Guin, 2007). However, due to the nature of this study and requirements of the target population of having online shopping experience, this is not seen as problematic.

The countries have been chosen due to their importance as global e-commerce markets and cultural divergence and so are well placed to provide insight into online loyalty development. This is taken from the perspective of developed (UK, US and China) and more nascent markets (India) as well as individualistic (UK, US) and collectivist (China, India) countries. These countries have additionally been selected from a more practical perspective in that there are sufficiently high enough numbers of the sample population that can be readily accessed. Confirmation was obtained from the market research firm that there were high enough levels of the target population in each of the countries. This

also contributed to addressing issues with the cross-sectional design of the survey. As data was gathered at one specific point in time, ensuring high levels of a target population from which to draw the sample allows for greater response rate achievement (Churchill & Iacobucci, 2006). To avoid self-selection bias, where a respondents decision to participate in a survey is influenced by external factors (e.g. behaviours and attitudes under examination in the survey) rather than researcher controlled factors (Olsen, 2011), the survey invitation given to respondents did not include content specific details about the survey. An issue with online consumer panels relates to the problem of professional survey takers, where motivation to participate is based primarily on reward gratification resulting in potentially inattentive or fraudulent behaviour. If these respondents present in large enough numbers they could potentially impact data quality and sample integrity (Dennis, 2001; Callegaro et al., 2014a; Hillygus et al., 2014). To minimize this impact, careful selection of a reputable market research firm was made that maintained the quality of the consumer panels. In addition the survey was designed to filter out inattentive or poor quality responses. These are subsequently discussed in more detail in the next section. Internet penetration rates are sufficient in each of the countries with a good level of infrastructure for respondents to have experience of shopping online and access to the internet. This includes access through a variety of different devices and so incorporates access via laptop, computers and mobile devices (phones and tablets).

#### **4.7.2 Sampling Size**

The adoption of Structural Equation Modelling aligns well with the research question in its ability to test multiple relationships simultaneously (Bagozzi, 2010; Ullman & Bentler, 2012). This technique requires a large sample size to ensure rigorous statistical analysis and sample sizes above 200 are generally considered acceptable depending on model

complexity (Kline, 2016). Furthermore Hair et al. (2018) recommends the item-to-respondents rate ratio should fall between 1:5 to 1:10, to ensure statistical significance, demonstrating the ratio between each item and respondent providing an indication of required relevant sample size.

In relation to this study, the total number of items used for the 8 constructs amounted to 48, which would suggest an acceptable sample size of 240 as a minimum requirement. In addition this study is conducted across 4 countries and to ensure a robust analysis would require a minimum sample sizes of 960 in total across the 4 countries. The total number of usable responses were 1010, with a minimum sample size of 250 in each country (China  $n = 250$ , India  $n = 250$ , UK  $n = 253$  and US = 257) providing a more than adequate sample size to effectively use SEM. To additionally confirm the suitability of the sample size, the item to ratio level for each country fell within the acceptable standards recommended by Hair et al. (2018), China 1:5, India 1:5, UK 1:5 and US 1:5.

The larger sample size allows for inter-country comparisons and facilitates the ability to test models in each country. This use of multiple datasets for cross-validation will help provide a deeper understanding of complex constructs and further insight into this topic (Mathison, 1988). It will allow for any inconsistencies in the data sets to be more easily recognised and the larger sample size will provide more comprehensive data for analysis (Rowley, 2014; Kumar, 2016). This approach increases the validity of the research by cross-verifying the same theoretical constructs across four different countries and two sectors, strengthening the credibility and the robustness of results.

### **4.7.3 Sampling Method and Incentives**

The use of a non-probability volunteer opt-in panel is used for this study. Non-probability sampling is used to ensure some control over the sample population. Respondents are randomly selected from the online panel to participate in the survey through automatically randomised e-mail invitations so as not to induce bias. Respondents initially volunteer to join the online consumer panel through an opt-in mechanism and are provided with a range of incentives provided by Qualtrics on completion of the survey. These may include; cash, airline miles, gift cards, redeemable points, sweepstakes entrance and vouchers. A number of studies have confirmed the importance of incentives in improving response rates with limited effects on response quality and survey outcome (Sánchez-Fernández et al., 2010; Göritz & Crutzen, 2012).

## **4.8 Survey Implementation and Construct Equivalence**

The survey instrument was developed using a range of techniques including, pre-testing, pilot testing, translation and back-translation. Conceptual, instrument and measurement (calibration and translation) equivalence was tested during the translation/back translation phases and pilot testing phases which involved a preliminary data analysis of unidimensionality, reliability and validity.

### **4.8.1 Pre-Testing**

The survey once developed from the construct items was tested on ten participants including five academics and five professionals. The keys aims of the pre-test were to measure completion times, understanding and clarity of questions, and response mechanisms. Participants were asked for feedback and these were incorporated into the pilot study. Questions were presented in a variety of different styles including; vertical,

horizontal and matrix. Participants were asked to comment on the use of these styles and their preferences. As the survey was hosted online, participants were asked to access it from a range of different devices (laptops, tablets, mobile phones) to ensure compatibility. This gave useful insight into the formatting and visual layout of the questionnaire across different devices and screen sizes with various resolutions.

#### **4.8.2 Choice of Market Research Firm**

Market research firm selection was based on a preliminary search of market research firms with access to participants in each of the four countries; China, India, UK and US. This significantly reduced the available options providing a smaller pool of international market research firms. The US based provider Qualtrics was selected due to its solid reputation and access to quality respondents. As a member of the European Society for Opinion and Marketing Research (ESOMAR), the independent professional market research association there was added confidence in its reliability. Qualtrics acts as a panel aggregator and reflects the trend of sample development from multiple sources rather than reliance on a single panel. For the purpose of this study, access to samples was from Lucid Federated Sample a Qualtrics panel provider partner. Checks were made on both companies to ensure the quality of data and adherence to ethical processes were in line with the University's ethical guidelines for research.

#### **4.8.3 Pilot Study**

The pilot study was implemented following the pre-test to formally test the questionnaire design in terms of; layout, completion time and understanding (Hulland et al., 2018). The inclusion of a pilot study has been shown to improve response rates and overall quality of the data. The pilot questionnaire was distributed in English to respondents in



the US, UK and India and in simplified Chinese to respondents in China. Although English is the main language in US and UK and dominantly used in online surveys, it was also used in India as both Hindi and English are considered main languages. Although a number of studies promote the use of surveys in the respondents target country language, English rather than Hindi was used in this study and appealed to the narrow sample of the total population who shop online. These respondents tend to be better educated, English speaking and more affluent, usually appearing in Tier 1,2 and 3 categories of the 5 tier Indian socio-economic classification system (Gehrt et al., 2012; Pandey & Chawla, 2014). Furthermore, although a number of studies highlight the need to host e-commerce sites in English, Hindi and regional languages (Cyr et al., 2008), the majority of e-tailing sites are hosted in English indicating familiarity with English when shopping online (Gehrt et al., 2012).

The pilot study was conducted in each of the four countries simultaneously in June 2017 targeting twenty-five respondents in each country. The data collection for the pilot study was completed within two days. The pilot study included an open ended question not present in the main study, where respondents could write general comments on the experience of completing the questionnaire and so acted as further mechanism to capture feedback on the questionnaire. These were generally all positive and respondents commented on their interest in the topic and the ease of completing the questionnaire.

#### **4.8.4 Translation and Back Translation**

A questionnaire was initially developed in English and formally translated into simplified Chinese for respondents in China at the pilot study stage by a professional translations team. Simplified Chinese was used as the main sample came from mainland China. The team consisted of bilingual Chinese native speakers. To ensure translation equivalence

the translated questionnaire was given to a native Chinese speaking academic with experience of online survey development to check and identify any issues. The academic was also provided with the English version of the questionnaire to ensure conceptual equivalence of the translated version. A few minor modifications were made in light of feedback from the academic. The modified version was then used in the pilot study. Initial analysis from the pilot study suggested good measurement and instrument equivalence. No further changes were made to the pilot version of the questionnaire.

The pilot version of the questionnaire was back-translated to further assure the quality of the instrument and to avoid errors with only one way translation (Brislin, 1970; Myers et al., 2000; Hult et al., 2008). This technique involved the use of a bilingual native speaker of the source language (English) to translate back the original Chinese translated version of the questionnaire and was conducted through a professional translation team. A comparison of both versions was made to identify any differences and check comparability. This was conducted by a professional translation team and further overlooked by an independent third party (a bilingual native speaking academic), to ensure equivalence in meaning. A key concern of using translated questionnaires is based on literal translations from one language to another and not fully conveying the meaning and purpose of the questions and so lacking equivalence which could affect the quality of the data (Myers et al., 2000; Van Herk et al., 2005; Douglas & Craig, 2007). Slight modifications were made and the final Chinese translated version was decided on. Other translation techniques have been advocated in the literature; Parallel translation –selection of the best of two translated versions (Hambleton et al., 2004) or committee translation – selection of the best translated version based on committee reviews and ongoing modifications (McGorry, 2000). These are argued to address equivalence issues better

than back-translation, which focuses more on literal translation (Douglas & Craig, 2007). However, in relation to this study back translation was considered the most practical and appropriate technique. To address concerns of equivalence, the back-translation and original translation were given to a third independent party, who was able to provide further assurances of translation equivalence.

#### **4.8.5 Formal Survey Implementation**

The main survey was launched in August 2017 in each of the four countries simultaneously and took four weeks to complete. A total of 1407 questionnaires were completed with 1010 usable ones. Manual review of the data was made by the researcher to initially check the quality of the data and to remove unusable responses. Data collection was then resumed and conducted in stages until the required amount of 250 usable questionnaires in each country was met. Although initial targets of 250 respondents in each country was met within a week, the number of actual usable responses took longer to obtain due to the manual data screening methods implemented to ensure the quality of the data. Further discussion of the data screening processes are outlined in Chapter five. Partial responses were not recorded and responses that did not meet the speed check were automatically discarded (1/3 of the median of completion times). Further checks were implemented by the market research firm to ensure the automatic removal of duplicates (respondents taking the survey multiple times) and BOTS (software created to take survey multiple times for incentives) to ensure the quality of the data. The target was initially met in China (n=250), followed by the UK (n=253), the US (n=257) and finally in India (n=250). The varying number in each of the samples is purely dependent on the number of usable responses in each batch, where the market research agency would supply a quantity of responses to meet the minimum target of 250 in each country.

## **4.9 Summary**

This chapter looked at the methodology undertaken for this study. First, an overview of the research philosophy was given providing context for the research design. The following section justified the use of an online survey and discussed the ethical considerations taken into account using this method. The next section examined issues in international research focusing on bias and equivalence. Cultural and social desirability bias were then discussed with an overview of how these have been addressed to minimize their impact. The development of the questionnaire was examined in the next section with further detail on the construct measures used including a rationale for their inclusion. The sampling plan was then explored in terms of the sampling population (online shoppers over 18, with prior experience of shopping online), the sampling size (250 in each country) and the sampling method (non-probability volunteer opt-in consumer panels) using incentives to reach the larger sampling size. The last section examined the implementation of the survey and examined construct equivalence in more depth. The inclusion of pre-testing and the pilot study were addressed alongside translation and back translation processes. The final stage of data collection using the main survey was then explained.

## **CHAPTER FIVE**

### **5.0 DATA PREPARATION AND ANALYSIS STRATEGY**

#### **5.1 Introduction**

The next three empirical chapters examine the preparation and analysis of the data collected from the online survey and its analysis using statistical methods to provide robust results and meaningful insights. This chapter seeks to confirm the robustness of the data and the viability of the online survey in collecting the data to address the key research question. The initial section provides a discussion of the measures implemented to ensure the quality of the data and includes steps taken prior to data collection in the design of the online survey and post data collection. The next section presents an overview of the process involved in the transformation of raw data gathered from the online survey into a working dataset. This is then followed by an examination of data normality issues and the handling of any outliers. Descriptive statistics are then presented in the next section providing further detail on the sample across all countries and in each country as a subset. This is then followed by a discussion on social desirability bias and the extent of any social desirability bias is examined. The last section includes a discussion on Structural Equation Modelling as a technique and its selection for this study. The analysis strategy is outlined with chosen model fit indices and the three main stages of analysis are explained; measurement model (common method variance issues and multi-group invariance testing), structural model and moderation. A summary concludes the chapter.

## **5.2 Data Examination**

### **5.2.1 Data Preparation**

A number of steps were taken to check the quality of the data using an iterative approach including procedures to reduce or eliminate undesired within survey behaviours. This was conducted during data collection through automatic implementation on the Qualtrics platform and further enhanced with manual inspections conducted by the researcher post-survey.

The issue with data quality and in particular online consumer panels has increased in importance over the years alongside the growth of online surveys as a research tool (Baker & Downes-Le Guin, 2007; Osborne, 2013; Callegaro et al., 2014a). A number of concerns have arisen regarding the quality of data collected online and more specifically from online consumer panels that could significantly affect the validity and reliability of the dataset (Baker & Downes-Le Guin, 2007; Osborne, 2013; Callegaro et al., 2014a). In particular and in line with general survey research, online surveys through online consumer panels can be prone to measurement error problems and imperfections caused by types of online panellists adversely affecting the data quality and sample integrity (Baker & Downes-Le Guin, 2007; Smith et al., 2016). Although there is no formal categorisation in the literature, for the purpose of this study can be associated around three key issues; fraudulent responses, inattentive responses (satisficers) and finally professional responders who may engage in fraudulent and satisficing behaviours (Downes-Le Guin, 2005; Golden & Brockett, 2009; Callegaro et al., 2014b; Smith et al., 2016). Fraudulent responses can either be based on human responders or specifically designed software (BOTS) to purposefully respond to online surveys with the sole aim of collecting multiple incentives (Gao et al., 2016). This can result in inattentive responses

or satisficing behaviour, where responses are given with little thought or attention and so could potentially affect the quality of the data (Krosnick, 1991; Downes-Le Guin, 2005; Baker & Downes-Le Guin, 2007).

As mentioned in Chapter four the issue of professional responders is often cited as a key concern of using online consumer panels. Professional responders may be more likely to engage in fraudulent or satisficing behaviours (Dennis, 2001; Rauyruen & Miller, 2007; Golden & Brockett, 2009). However, there is debate in the literature with some studies suggesting professional responders may be less likely to satisfice and due to their familiarity with the online survey format may provide more thoughtful responses (De Wulf & Berteloot, 2007; Chang & Krosnick, 2009; Walker et al., 2009). The issue of professional responders therefore, seems to be more intrinsically linked to motivations for engaging in the survey. To address these issues and reduce the impact of fraudulent and satisficing behaviours a number of commonly used procedures have been employed in this study to identify and remove these types of respondents and hence improve the quality of the data. The next two sections discuss the procedures involved focusing on automatic and manual procedures.

#### **5.2.1.1. Automatic Procedures**

During data collection, automatic procedures were put in place by Qualtrics to identify Bots - software created with the intention of taking surveys multiple times for incentives which could damage data quality. These indicators addressed issues regarding fraudulent non-human respondents. Further processes were included to identify professional responders including deduplication technology, where responders were prohibited from taking the same survey multiple times. The final automatic procedure involved removing

satisficers indicated as speeders – respondents who speed through the survey without reading any questions. Respondents who completed within a 1/3 of the average completion times were removed. These measures are in line with industry guidelines as set by ESOMAR, the independent professional body for market research.

#### **5.2.1.2 Manual Procedures**

The raw data was downloaded from Qualtrics as an excel spreadsheet and manually checked by systematically reviewing each record. Automatic coding had been established prior to data collection and so reduced the analysis time. The process involved reviewing four batches of data until the required amount of a minimum of 250 responders in each country was achieved so adopting an iterative approach. A total of 1407 responses were reviewed with 1010 usable ones identified.

The manual process involved identifying satisficing behaviours based on commonly used post survey indicators including; non-differentiation (straight liners), bad verbatims and conflicting responses to reverse statements resulting in non-substantive responses. Non-differentiation responses (straight liners) were identified as respondents providing the same response for all questions (Krosnick, 1991). Only 2 responses (India and US) were removed from a total of 397 poor quality responses indicating this was not problematic. It could be indicative of the literature in this area suggesting respondents familiar with online surveys are less likely to engage in this behaviour due to its prevalence as a commonly used check which could prevent access to incentives (Downes-Le Guin, 2005; Göritz & Crutzen, 2012; Callegaro et al., 2014b).

Bad verbatim respondents were highlighted as those that had written nonsensical words with no meaning in the open-ended questions indicating they had not read the question



and provided meaningless responses. Using this indicator 12 out of 397 poor quality responses were removed (6 from China and 5 from the US). Similarly to non-differentiation responses, this was not a huge issue and could be attributed to respondent familiarity with online survey checks and so a reluctance to highlight any overt problems (Downes-Le Guin, 2005; Baker & Downes-Le Guin, 2007).

The final indicator of attention was the inclusion of a mixed worded 4-item, 7-point Likert scale measure- which included positive and negative worded statements. This included (online word of mouth) EWOM measures developed by Srinivasan et al. (2002), which although not directly relevant to this study conceptually, contain items used to assess response quality. The first two items are positively worded (positive recommendations about the website) while the second two items are negatively worded (negative recommendations about the website) as shown in Table 5.1. The inclusion of this scale was to address issues with respondent inattention and satisficing behaviour. If respondents answered the first two statements favourably it would be expected they would answer the second two more negatively. This would be evident on the Likert scale with the suitable response options chosen. For example, if respondents strongly agreed to the first two statements – positive recommendations (scoring 5-7 on the Likert scale), it would be expected the second two statements – negative recommendations, would score at the opposing end of the scale and a much lower score (scoring between 1 and 4 on the Likert scale). The manual check involved examining the Likert scores for similar results which would indicate respondents had either not understood the question or had not paid attention to the selections made. If respondents had scored all 7s or all higher values on the Likert scale or conversely, all lower values they were therefore removed from the dataset. This indicated the poor quality of responses.

**Table 5.1 Mixed word scale for EWOM (Electronic Word of Mouth)**

Construct	Anchors	Measurement Items	Source
EWOM	<i>1- Strongly</i>	Please answer the following questions about the	Srinivasan & Anderson (2002)
	<i>Disagree - 7</i>	electrical products website you use.	
	<i>Strongly Agree</i>	1 I say positive things about this website to other people	
		2 I recommend this website to anyone who seeks my advice	
		3 I do not encourage friends to business with this website a	
		4 I hesitate to refer my acquaintances to this website	

This process resulted in 383 responses removed from the dataset emphasizing the largest impact on data deletions. There is debate however, over the use of mixed worded scales and in particular their applicability in international studies alongside lower measurement reliabilities (Wong et al., 2003). It was decided to incorporate this scale to highlight careless responding, indicating poor attention in line with recommendations from a number of psychometric studies. Additionally this scale can contribute to controlling for acquiescence- agreement bias (Podsakoff, 2003; Weijters et al., 2013). This is further supported by incorporating a balanced scale (an equal number of positive and reverse worded items) to resolve any issues associated with systematic response bias (Baumgartner & Steenkamp, 2001).

### 5.2.2 Missing Values

Missing values in the dataset can be problematic for statistical analysis through structural equation modelling (SEM) and can lead to concerns regarding inefficient analysis and bias conclusions (Allison, 2003; Horton & Kleinman, 2007). Missing values can occur for a variety of reasons with online surveys including; respondents missing or failing to answer questions, data collection and survey construction errors and, software and technical problems (Evans & Mathur, 2005; Kline, 2016; Hair et al., 2018).

The approach adopted in this study regarding missing values is based on preventative measures to ensure the provision of a complete dataset and so limiting issues with missing values. The primary technique involves the use of using ‘forced responses’ in the online survey. This means respondents are not able to proceed to subsequent questions without completing the current question and so removing potential errors that could occur with missing values. If respondents fail to answer a question and attempt to move on to the next section an error message is displayed informing respondents continuation cannot occur without a completed response. There is debate however, in the literature regarding the inclusion of forced response questions. Some studies suggest this format may reduce response rates and negatively impact respondents’ attitudes towards the survey particularly with sensitive questions which may lead to untruthful answers (Stieger et al., 2007; Sue & Ritter, 2011; Fink, 2012). Opposing this view, there is evidence to suggest forced response questions may encourage better quality responses due to deeper processing with minimum impact on response rates (DeRouvray & Couper, 2002; O’Neil et al., 2003; Smyth et al., 2006). As this study does not contain any traditionally viewed sensitive items and respondents are already members of an online consumer panel so familiar with supplying personal demographic details, the inclusion of forced response questions is not deemed as problematic. The total number of responses collected amounted to 1407 with no missing values due to the forced-choice mechanism. This implied the 1010 usable responses did not contain any missing values and a complete dataset was used in the data analysis mitigating any concerns with missing values.

### **5.3 Tests of Outliers and Normality**

#### **5.3.1 Outliers**

Outliers are cases that significantly deviate from the centroid of scores and their inclusion in the data may affect multivariate normality through shifts in mean and standard deviation scores (Osborne & Overbay, 2004; Byrne, 2016). Further concerns more specifically concerned with structural equation modelling involve the possible impact of outliers biasing parameter estimates (Yuan & Bentler, 2001; Kutner et al., 2004; Lai & Zhang, 2017). Univariate outliers demonstrate extreme values for a single variable where extreme scores are commonly considered as scores of three standard deviations beyond the mean ( $z=3$ ), (Osborne & Overbay, 2004; Kline, 2016). Whilst univariate outliers can be identified through visual observations (for example using scatterplots or boxplots), this study identifies univariate outliers through standardised z-scores providing better accuracy through statistical means. This test was conducted using SPSS examining the frequency distributions of the z-scores of the individual variables (see Table 5.2). Given the maximum values did not exceed the accepted threshold range of 4.0 for larger sample sizes (greater than 100), univariate outliers were not identified in the sample (Gallagher et al., 2008).

**Table 5.2 Univariate Outliers**

Variable	N	Minimum (z-score)	Maximum (z-score)
COSMO	1010	-3.63281	1.48632
<b>Clothing</b>			
ELOYALTY	1010	-3.94212	1.17664
ETRUST	1010	-4.56202	1.17074
ERS	1010	-4.02063	1.11837
EAC	1010	-1.96865	1.59574
EPRI	1010	-3.21687	1.19525
INV	1010	-2.93112	1.22712
<b>Electrical</b>			
ELOYALTY	1010	-3.85348	1.15778
ETRUST	1010	-4.52507	1.09868
ERS	1010	-4.68075	1.03902
EAC	1010	-2.16113	1.39705
EPRI	1010	-3.62617	1.14919
INV	1010	-3.38126	1.15738

Values given for standardised z-scores on aggregate variable

Univariate outlier identified as value above 4.0 for large sample size (above 100)

Aggregate dataset used (N) -Sample size

ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online relationship investment), COSMO (consumer cosmopolitanism), INV (product category involvement)

Multivariate and Bivariate outliers show extreme values on two or more variables and can be measured using an index based on distance (Mahalanobis Distance  $D^2$ ). The Mahalanobis  $D^2$  measure provides the distance in standard deviation units of observations from the mean centre of the observations. Multivariate outliers can be identified as those farthest from the mean centre of the observations with a commonly used threshold of  $p < 0.001$  (Kline, 2016). Although a widely used approach to identify outliers, a key limitation is based on its independent relation to sample size. There is no agreed formalised method to identify and handle multivariate outliers and even less regarding SEM with much of the literature considered fragmented in this context (Aguinis et al., 2013). Furthermore, Pek and McCallum (2011), make the distinction between outliers

(cases that lie away from the data point) and influential observations (cases that lie away from the data point and exert influence on model fit and parameter estimation). Following on from these definitions, this study focuses on outliers at both a univariate and multivariate level.

Results from the Mahalanobis distance as shown in Appendix E (multivariate outliers in the clothing dataset) indicate a total of 80 cases that could be considered outliers (where  $p < 0.001$ ) out of a sample size of 1010 (8%). These can be seen by the first 80 cases where  $p = 0.000$  and so below the 0.001 threshold. The largest distance is 201.995 standard unit deviations from the mean centre of the total observations and the smallest distance is 66.955. Similarly in the electrical dataset (see Appendix F), multivariate outliers highlight a total of 84 potential outliers from a total sample size of 1010 (8.3%). Displaying a slightly more narrow range compared to the clothing dataset, the Mahalanobis distances range from 184.177 to 66.681. The relatively small number of outliers compared to the total sample size suggest a limited influence of outliers, which is further supported by the conservative largest distance and no reported issues with univariate outliers as shown earlier.

The top 7 most influential outliers were investigated further, these were cases 491, 261, 285, 485, 501, 432 and 414 (see Appendix E) as they displayed the greatest Mahalanobis distance ranging from 201.995 to 129.389 in the clothing dataset. The electrical dataset showed similar results and included cases 501, 261, 150, 157, 687, 469 and 480 (see Appendix F), with the Mahalanobis distance ranging from 184.177 to 134.239. Each case was initially manually examined in SPSS with no significant discrepancies identified.

These extreme outliers were further investigated in terms of model fit. An initial investigation was conducted comparing model fit with and without the inclusion of all extreme outliers, in both the clothing and electrical datasets. The initial proposed structural model was used to gauge the impact of outlier removal. The clothing set was examined with 7 outliers removed (cases - 491, 261, 285, 485, 501, 432 and 414). Similarly, the electrical dataset was examined with 7 outliers removed (501, 261, 150, 157, 687, 469 and 480). This was to examine if extreme outliers had any impact on the initial structural model fit. A range of fit indices were used solely for comparison purposes which are explained further on in this chapter.

Initial results indicate no significant influence of outliers on model fit in both the clothing and electrical sectors, see Table 5.3. The clothing dataset results are extremely similar (comparing model fit with and without outliers), across a range of indices with a number indicating the same results. The results show ‘with outliers’ - ( $\chi^2/df = 3.817$ , CFI = 0.977, TLI = 0.972, SRMR = 0.039 and RMSEA = 0.053) and ‘with outliers removed’ ( $\chi^2/df = 3.912$ , CFI = 0.977, TLI = 0.972, SRMR = 0.039 and RMSEA = 0.053). The electrical dataset shows negligible differences between the indices, further suggesting the limited impact of outlier removal. The results show ‘with outliers’ - ( $\chi^2/df = 4.519$ , CFI = 0.974, TLI = 0.969, SRMR = 0.042 and RMSEA = 0.059) and ‘with outliers removed’ ( $\chi^2/df = 4.812$ , CFI = 0.973, TLI = 0.967, SRMR = 0.042 and RMSEA = 0.062) .

**Table 5.3 Structural model fit comparison of outlier removal**

<b>Clothing</b>			<b>Electrical</b>		
	Orginal (including all outliers)	Outliers Removed		Orginal (including all outliers)	Outliers Removed
	<i>n=1010</i>	<i>n=1003</i>		<i>n=1010</i>	<i>n=1003</i>
$\chi^2$	484.757	496.832	$\chi^2$	573.886	611.145
$\chi^2/\text{df}$	3.817	3.912	$\chi^2/\text{df}$	4.519	4.812
p-value	0.000	0.000	p-value	0.000	0.000
CFI	0.977	0.977	CFI	0.974	0.973
TLI	0.972	0.972	TLI	0.969	0.967
SRMR	0.039	0.039	SRMR	0.042	0.042
RMSEA	0.053	0.053	RMSEA	0.059	0.062

Aggregate dataset used (N) = sample size

Structural model fit based on proposed initial measurement and structural model

7 most influential outliers removed from clothing and electrical dataset

Model fit indices with acceptable threshold levels:  $\chi^2$  (chi square), df (degrees of freedom),  $\chi^2/\text{df}$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$

The remaining outliers have been kept in the analysis as they show minimum impact and any unfavourable effects are able to be absorbed in the larger dataset (Tabachnick & Fidell, 2007; Aguinis et al., 2013). In addition outliers may not automatically be harmful and their inclusion prevents possible artificial range restrictions (Hawawini et al., 2003; Hawawini et al., 2005; McNamara et al., 2005). Outliers in this instance have been acknowledged and kept in the dataset as they do not seem to pose a serious threat to data integrity.

### 5.3.2 Normality

Methods used to estimate associations in structural equation modelling are based on assumptions of multivariate normality (Bentler & Chou, 1987; Fan et al., 1999; Székely & Rizzo, 2005; Arbuckle et al., 2016; Kline, 2016; Byrne, 2016). A key requirement therefore is to establish the normality of the data. If the data displays multivariate non-normality this could have implications for the accuracy of statistical tests conducted and



any interpretations drawn from them. Normality can also be detected at a univariate level where the distribution is focused on individual variables. While confirming multivariate normality assumes the existence of univariate normality the reverse is not true. Confirming univariate normality does not automatically confirm multivariate normality and so both types of normality are examined below (West et al., 1995; Byrne, 2016).

Multivariate normality refers to the normal distribution of two or more variables in relation to each other and can be measured either visually (histograms) or statistically. For the purpose of this study multivariate normality is measured with statistical methods using Mardia's coefficient (Mardia, 1970) in AMOS. This provides a more objective rather than subjective view which can be a restriction when using visual methods. Although a limitation of using Mardia's co-efficient has been cited as its sensitivity in large sample sizes it is still considered an acceptable measure. It is widely used to detect deviances from multivariate normality through generalisations of skewness and kurtosis (Székely & Rizzo, 2005; Yuan, et al., 2005; Mayers, 2013; Kline, 2016; Hair et al., 2018).

Skewness shows the degree of asymmetry of a distribution and tends to convey information surrounding the means of the variables (Byrne, 2016). The univariate skewness statistics for the clothing dataset as shown in Appendix G, demonstrates a range of skewness from -1.139 to -0.186. Using generally acceptable ranges of high, low and non skewness (Bulmer, 1979), the results indicate 12 variables can be considered highly negatively skewed (values are less than -1). In addition 17 variables are moderately skewed (values between -1 to -0.5 or between 0.5 to 1) and 4 variables are not skewed suggesting normal distribution (values between -0.5 to 0.5). Similarly, the univariate skewness statistics in Appendix H (examining the electrical dataset), range from -1.313 to -0.186. The results indicate 16 variables can be considered highly negatively skewed,

14 moderately negatively skewed and 3 are not skewed displaying normal distribution. These results are expected due to the nature of the questions and sample. Participants are asked questions surrounding their online shopping attitudes towards e-tailers they are loyal to, suggesting a currently favourable attitude towards the e-tailer. The negatively skewed results suggest participants are responding favourably with a higher number of responses at the more positive end of the Likert scale (responses related to 4 – 7). Given this situation the results can still be considered valid due to the greater number of individual variables displaying moderate positive skewness and normality compared to the highly positively skewed results.

The Kurtosis statistics reflect the peakedness of the curve reflecting the variation in the data (Mayers, 2013; Field & Andy, 2018). This is of particular significance in structural equation modelling due to its impact on variance and covariances on which SEM analysis is based (Byrne, 2016). The univariate kurtosis values for the clothing dataset ranges from -0.996 to 1.889 and the electronic dataset ranging from -0.966 to -1.969 as shown in Appendix G and H respectively. Given that the ranges are substantially below the threshold of normality value of 7 (West et al., 1995; Byrne, 2016), univariate kurtotic normality appears to be present. However, as discussed previously univariate kurtotic normality does not necessarily imply multivariate kurtotic normality and hence multivariate normality. Multivariate normality can be examined using multivariate kurtosis and multivariate critical ratio (c.r) values as shown in Appendix G and H. Importance is placed on the multivariate c.r value which indicates Mardia's (1970) normalised estimate of multivariate kurtosis (Arbuckle et al., 2016; Byrne, 2016). It can be seen the multivariate c.r value is 154.441 (clothing dataset) and 171.846 (electrical dataset), see Appendix G and H respectively. Both are substantially above the 5.00

normalised estimate threshold suggested by (Yuan et al., 2005), and above 20 (Kline, 2016) indicating multivariate non-normality in the sample. Further tests were conducted removing the extended outliers as discussed in the previous section to examine their impact on the normality of the sample. A total of 14 extreme outliers were removed from the ALL datasets (7 outliers from the clothing dataset and 7 from the electrical dataset) resulting in updated multivariate c.r values (Mardia's 1970 coefficient) in the clothing and electrical datasets of 112.240 and 140.153 respectively. Although the removal of outliers shows a slight reduction from initial c.r values of 154.441 (clothing dataset) and 171.846 (electrical dataset), the impact on normality is negligible with normalised estimates still significantly above the 5.00 threshold indicating moderate non-normality (Yuan et al., 2005) and the 20.00 threshold (Kline, 2016) indicating severe non-normality, thereby providing further evidence to support the inclusion of outliers and a strong indication of multivariate non-normality in the sample.

Assumptions of multivariate normality are usually required for SEM and are considered a pre-requisite for the commonly used estimation technique based on Maximum Likelihood (ML). While there is evidence to suggest larger sample sizes can reduce the impact of non-normality a number of studies have argued it is acceptable to use the ML estimation technique due to its robustness with non-normal data (Chou & Bentler, 1995; Iacobucci, 2010; Byrne, 2016; Kline, 2016; Hair et al., 2018). The use of bootstrapping is further included in this study as an additional measure to examine the impact on non-normal data. This resampling technique involves ML estimation based on multiple randomly created subsamples from an original sample that is considered as the population sample. Comparisons can then be made between the various subsamples in terms of parameter distributions (Bollen & Stine, 1992; Yung & Bentler, 1996; Fouladi, 1998;

Efron, 2000; Nevitt & Hancock, 2001; Cheung & Lau, 2008; Kim & Millsap, 2014; Kline, 2016). A key advantage of this technique is the focus on samples from an actual population rather than hypothesized samples as is the case with traditional statistical methods. This has been argued to provide values and parameter estimates with greater accuracy compared to more traditional techniques and is seen to be effective in moderate and large samples (Ichikawa & Konishi, 1995; Zhu, 1997; Efron, 2000; Nevitt & Hancock, 2001). The limitations of this method have been discussed in the literature and inaccurate results could be obtained with smaller sample sizes and missing data (Ichikawa & Konishi, 1995; Yung & Bentler, 1996; Kline, 2016). Additionally, Byrne (2016), argues bootstrapping is not beneficial in testing for factorial validity, while other researchers highlight the need of understanding its performance under different conditions (Fouladi, 1998; Cornea-Madeira & Davidson, 2015; Cheng & Wu, 2017). However, this study employs a large sample size (1010) with no issues regarding missing data and hence mitigates any limitations with the results from the bootstrapping technique.

#### **5.4 Profile of Respondents**

The following section examines the descriptive statistics of the sample population and is divided into and demographic (Table 5.4) and behavioural (Table 5.5) data. The demographic data shows detail on the sample used in the study and ideally should be representative of the total population in each of the countries. For the purpose of this study the total population is considered to be the total number of online shoppers rather than the general population as this study is specifically based around online shopping behaviour. The sample studied seems reasonably representative of the total population in each of the countries and aligns well with general demographic data supplied in these

countries. While there are some gender fluctuations in each of the countries regarding online shopping, a balanced gender split between male and female is seen in the sample data and has been included as a requirement prior to data collection to enable a more consistent comparison. The discussion below relates to the suitability of the sample dataset in relation to the general population of online shoppers in each of the countries and focusses more specifically on age, income, education and employment.

#### **5.4.1 China**

The sample data contains the highest percentage of respondents in the 25-34 (48.8%) and 35 – 44 (22.4%) age group with the quintile 4 income group (47.6%) as shown in Table 5.4. The highest number of respondents appear in the undergraduate higher education sector (70.8%). This is represented by data in the total population with the highest percentage of online shoppers in China with an average age of 25 and an income range of 106,000 – 229, 000 RMB often classified as younger middle-income urbanites (Deloitte, 2016; China Britain Business Council, 2017). A large majority are educated to undergraduate degree level with China displaying the largest enrolment in higher education globally (42.7%, 37 million students) (OECD, 2016). A very high percentage of respondents are in paid work (78.8%) which corresponds well with the younger middle-income urbanite classification of online shoppers (Deloitte, 2016).

#### **5.4.2 India**

Similarly to China respondents in the 25-34 (43.2%) age group are represented the most strongest and unlike China, UK and the US, the 18-24 (30.8%) age group is also significant (see Table 5.4). Additionally, in contrast to the other countries the largest percentage of respondents appear in the quintile 5 (62.4%) income range and so display

one of the highest income ranges for online shoppers (150,001 rs +). Alongside China and the US, education at the undergraduate level (44.4%) is the most popular. As expected the majority of respondents are in paid employment (53.2%) but there are a significant number of students in the sample (16.4%). These results are comparable to general data regarding online shoppers in India. With reference to age groups, India has the highest number of internet users under the age of 35 (75%) with 89% of users in the 18 -35 age group considered as heavy users. This could explain the unusually high level of respondents in the 18-24 age group alongside the high number of students in the sample dataset (EY India, 2016).

#### **5.4.3 UK**

The UK sample data shows the highest percentage of the sample appearing in the 45-54 (20.9%) and 55-64 (23.3%) age groups which is in stark contrast to the younger age groups highlighted in China and India (see Table 5.4). Income levels are recorded as slightly lower with Quintile 3 income (25.3%) as the most popular, although there is more consistency across the income groups ranging from quintile 1 (20.9%), quintile 2 (23.0%) and quintile 4 (20.9%). Unlike China and India the majority of the sample have been educated to Secondary school level (35.6%) rather than to a graduate level. The majority of respondents are in paid employment (49.8%) with a significant number categorised as 'retired' (17.8%). The age groups identified in the sample are slightly higher than the expected average given in external reports which often identify the 25-34 age group as the most popular online shoppers (24%). There is evidence to suggest older consumers are shopping online with increases seen in older age groups 35 -44 (26%) and 45 – 54 (18%) with the strongest growth expected from the 65+ age group (eMarketer, 2017; Office of Communications, 2017; Office for National Statistics, 2017). The significant

number of retired respondents in the sample could also be a reflection of the ageing population in the UK (Office for National Statistics, 2018).

#### **5.4.4 US.**

The US sample size similarly to the UK shows a high number of respondents in the 55 – 64 (26.8%) age group as well as the more commonly expected 25-34 (24.5%) age group (see Table 5.4). Income levels are again similar to the UK and highlight quintile 3 (32.2%) as the most popular alongside quintile 2 (20.6%) and quintile 4 (20.2%) and so show a consistent spread in the middle-income ranges. Education levels are mostly seen at the undergraduate level (35%) with the post-secondary/high sector also showing popularity (31.5%) and so indicating a broader educational level of online shoppers in the US. Most respondents are in paid employment (49.4%) but a significant number are also retired (15.2%), which would correspond with the higher number of respondents in the 55-64 (26.8%) age group. Millennials are often cited in the literature as having the largest impact on retail e-commerce and are seen as the most influential group online (Deloitte, 2017; KPMG, 2017). According to the PEW Research Center they are classified as born between 1981 and 1996 with an age range of 21 -36 (Fry & Richard, 2018). This aligns somewhat with the sample data with age ranges of 25-34 (24.5%) of respondents being the second most popular. Surprisingly and similarly to the UK, the older age range 55-64 (26.8%) is slightly more prevalent in the sample and is further reflected in the number of retired participants (15.2%).

Overall there is good evidence from external data sources to suggest the sample population used in this study sufficiently reflects the general population of online shoppers in each of the countries; China, India, UK and US.

#### **5.4.5 Behavioural Data**

In addition to demographic data behavioural data was also collected as can be seen in Table 5.5. This focuses on consumers' 'experience' of shopping online and 'frequency of purchase'. Consumers across all four countries had more than 3 years' experience of shopping online; China (78%), India (48%), UK (86.2%) and US (81.7%). Given this study is based on loyalty and repeat interactions with a retailer it was expected consumers would have prior experience of online shopping and it is evident from the sample data the majority of respondents are long-term online shoppers. As expected figures for the UK (86.2%) and US (81.7%) are slightly higher than China (78%) and India (48%) which could be reflective of the maturity of these e-commerce markets highlighting the fact consumers have had more time to shop online. A higher percentage of consumers have had 1-3 years shopping experience in China (18.4%) and India (38.4%) which could reflect the recent growth of these markets particularly in India which is still in the infancy stages of development. The frequency of purchase is shown by high levels in the 1-2 times range, indicating consumers have bought 1-2 products online in the last month; India (53.6%), UK (54.2%) and US (43.6%), reflecting the importance of online shopping to consumers. Interestingly China shows the highest frequency in the 5 times or more category (40.8%), closely followed by the 3-4 time category (39.6%) which is a strong indication of the popularity of online shopping in China (KPMG, 2017).



Table 5.4 Profile of respondents

	ALL (n=1010)		China (n=250)		India (n=250)		UK (n=253)		US (n=257)	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
<b>Gender</b>										
male	523	51.8	125	50	121	51.6	133	52.6	136	52.9
female	487	48.2	125	50	121	48.4	120	47.4	121	47.1
<b>Age</b>										
18-24	162	16	45	18	77	<b>30.8</b>	18	7.1	22	8.6
25-34	334	<b>33.1</b>	122	<b>48.8</b>	108	<b>43.2</b>	41	16.2	63	<b>24.5</b>
35-44	175	17.3	56	<b>22.4</b>	42	16.8	39	15.4	38	14.8
45-54	127	12.6	24	9.6	14	5.6	53	<b>20.9</b>	36	14
55-64	135	13.4	2	0.8	5	2	59	<b>23.3</b>	69	<b>26.8</b>
65+	77	7.6	1	0.4	4	1.6	43	17	29	11.3
<b>Income</b>										
Quintile 1 (Low)	123	12.2	22	8.8	21	8.4	53	20.9	27	10.5
Quintile 2	157	15.5	26	10.4	18	7.2	60	23.7	53	20.6
Quintile 3	228	22.6	58	23.2	25	10	64	<b>25.3</b>	83	<b>32.3</b>
Quintile 4	256	<b>25.3</b>	119	<b>47.6</b>	30	12	53	20.9	52	20.2
Quintile 5 (High)	246	24.4	25	10	156	<b>62.4</b>	23	9.1	42	16.3
<b>Education</b>										
Did not complete	10	1	1	0.4	2	0.8	3	1.2	4	1.6
Secondary/High	125	12.4	1	0.4	7	2.8	70	27.7	47	18.3
Post Secondary/High	255	25.2	50	20	34	13.6	90	<b>35.6</b>	81	31.5
Higher Education	620	<b>61</b>	198	<b>79.2</b>	207	<b>82.8</b>	90	<b>35.6</b>	125	<b>48.6</b>
<b>Employment</b>										
Working (paid)	583	<b>57.7</b>	197	<b>78.8</b>	133	<b>53.2</b>	126	<b>49.8</b>	127	<b>49.4</b>
Working (self-employed)	106	10.5	20	8	41	16.4	27	10.7	18	7
Not working (looking)	41	4.1	2	0.8	13	5.2	12	4.7	14	5.4
Not working (retired)	88	8.7	3	1.2	1	0.4	45	17.8	39	15.2
Not working (student)	78	7.7	23	9.2	41	16.4	6	2.4	8	3.1
Stay at home	4	0.4	4	1.6	17	6.8	17	6.7	25	9.7
Not working (other)	11	1.1	1	0.4	4	1.6	2	0.8	4	1.6
Prefer no answer	2	0.2	0	0	0	0	1	0.4	1	0.4
<b>Experience</b>										
6 months - 1 year	58	5.7	9	3.6	34	13.6	9	3.6	6	2.3
1 - 3 years	209	20.7	46	18.4	96	38.4	26	10.3	41	16
3 + years	743	<b>73.6</b>	195	<b>78</b>	120	<b>48</b>	218	<b>86.2</b>	210	<b>81.7</b>
<b>Frequency Purchase</b>										
none	75	7.4	2	0.8	26	10.4	16	6.3	31	12.1
1-2 times	430	<b>42.6</b>	47	18.8	134	<b>53.6</b>	137	<b>54.2</b>	112	<b>43.6</b>
3-4 times	287	28.4	99	39.6	65	26	49	19.4	74	28.8
5 times or more	218	21.6	102	<b>40.8</b>	25	10	51	20.2	40	15.6

*Freq* – actual frequency of response    % - frequency of response as percentage

*Actual income and education levels for each country can be found in Appendix C and C*

*N* – Total sample population    *n* – subset sample

**Table 5.5 Descriptive statistics of online shopping behaviour**

	<b>ALL</b>		<b>China</b>		<b>India</b>		<b>UK</b>		<b>US</b>	
	<b>(N=1010)</b>		<b>(n=250)</b>		<b>(n=250)</b>		<b>(n=253)</b>		<b>(n=257)</b>	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
<b>Experience</b>										
6 months - 1 year	58	5.70	9	3.6	34	13.6	9	3.6	6	2.3
1 - 3 years	209	20.7	46	18.4	96	38.4	26	10.3	41	16.0
3 + years	743	73.6	195	78.0	120	48.0	218	86.2	210	81.7
<b>Frequency Purchase</b>										
none	75	7.40	2	0.8	26	10.4	16	6.3	31	12.1
1-2 times	430	42.6	47	18.8	134	53.6	137	54.2	112	43.6
3-4 times	287	28.4	99	39.6	65	26.0	49	19.4	74	28.8
5 times or more	218	21.6	102	40.8	25	10.0	51	20.2	40	15.6
<i>Experience: online shopping experience in months and years</i>										
<i>Frequency of purchase: clothing and electrical products within the last month</i>										
<i>Freq: frequency of purchase      % frequency of purchase as percentage</i>										
<i>N- Sample size of total population, n – subset sample size</i>										

## 5.5 Social Desirability Bias

Social desirability bias is based on the 13-item Reynolds (1982) revised scale from the original 33-item Marlowe and Crowne (1964) scale. As discussed previously social desirability bias can affect results in international studies through various response styles. While the previous chapter explored non-statistical measures to limit the impact of social desirability bias, this section examines statistically the impact of social desirability bias on measurement indicators. Respondents were asked to answer ‘true’ or ‘false’ to a set of 13 items as laid out in section 4.6.10 Social Desirability Scale. These results were coded into dichotomised numerical variables where 1 = True and 0 = False, with scores aggregated to give a final social desirability score ranging from 1 to 13. Higher scores reflected greater levels of social desirability bias.

The extent to which social desirability bias affects constructs through responses was examined by calculating the correlation coefficient between the total SDB scores and total scores from constructs. The Pearson correlation coefficient was used and  $r$  values obtained in SPSS. The  $r$  values indicate the level of correlation existing between social desirability scores and the extent to which they affect measurement indicators. Values near -1 and +1 indicate strong correlations where social desirability bias does affect responses and values with 0 indicating no correlation. Table 5.6 shows the correlation between SDB and the constructs in the clothing and electrical dataset. Values are given for the Pearson correlation coefficient ( $r$ ) and the explained variance ( $r^2$ ). It can be seen from both tables  $r$  values are low and do not exceed limits of 0.2 or -0.2 suggesting correlations between SDB and constructs is either non-existent or negligible. Similar results are therefore produced for  $r^2$  values, demonstrating social desirability bias explained between 1% to 3% of the variability in response to questions.

The results for the ALL clothing dataset show  $r^2$  values ranging from 0.000 to 0.009. China exhibited  $r^2$  values ranging from 0.00 to 0.008, one of the lowest ranges. India displayed ranges between 0.00 to 0.020 and the UK showed ranges between 0.001 to 0.006. The US showed one of the higher ranges with  $r^2$  values falling between 0.000 and 0.036. The variability due to SDB is extremely low across all clothing datasets indicating a negligible effect from social desirability. The results for the electrical dataset show similar results with  $r^2$  values for the ALL dataset ranging from 0.007 to 0.095. Values in China range from 0.001 to 0.007, similar to the clothing dataset. India has a range from 0.000 to 0.016 and the UK 0.000 to 0.010. The US has values that fall between 0.001 to 0.036, again one the higher ranges. The results confirm findings from the clothing dataset

on the negligible effects of social desirability. Adjustments to both datasets (clothing and electrical) regarding SDB are therefore not required.

The results from this study indicate SDB has not affected the results and is further strengthened with similar results in two datasets (clothing and electrical). This could be due to the type of questions and context (i) questions are not considered sensitive and so mask the need to show false responses and (ii) the sample selected is based on consumers with at least some experience of online shopping and previous interactions with e-tailers. This suggests consumers are more than likely to show positive responses as repeat visits to an e-tailer would be based on previous positive interactions. Responses are therefore expected to be skewed towards the positive end of the response scale and (iii) shopping online is a fairly uniform experience across countries and so responses may not be as varied.

**Table 5.6 Correlation between SDB and Constructs**

[illegible]

## **5.6 Selection of Structural Equation Modelling (SEM)**

Structural equation modelling (SEM) is a term encompassing a variety of statistical modelling techniques to quantitatively analyse data. Primarily SEM is a theory-driven technique that enables hypothesized relationships between independent and dependent variables to be tested (Bentler, 1988; Jöreskog, 1993; Diamantopoulos et al., 2008; Ullman & Bentler, 2012; Byrne, 2016; Kline, 2016). The proposed model created for this study (including relationships between variables) and subsequent hypotheses have been constructed from an extensive review of the literature and based on theoretical perspectives of relationship marketing, relationship quality and reciprocity. Adopting this theory-driven approach better allows for hypothesis testing and examining data from an inferential perspective compared to other multivariate procedures which tend to offer more descriptive analysis (Hox & Bechger, 1998; Byrne, 2016). In addition SEM allows for abstract concepts (ELOYALTY, ETRUST, ERS, EAC, EPRI, product category involvement and consumer cosmopolitanism) that would be difficult to observe with traditional methods, measurable through observed variables (Tabachnick & Fidell, 2007; Hair et al., 2018). While traditional multivariate techniques are only based on observable variables, SEM is able to evaluate both observed and unobserved (latent) variables and so enables a greater understanding of the relationships between psychological variables used in this study. This study therefore adopts a confirmatory factor analysis approach (CFA) as opposed to an explanatory factor approach (EFA). Another reason for the adoption of SEM for this study is evident in its ability to test multiple simultaneous relationships as compared to single relationships with traditional multivariate methods. This approach facilitates a more efficient examination of complex models (Bagozzi, 2010; Gefen et al., 2011; Preacher et al., 2011; Ullman & Bentler, 2012). Finally, unlike

other multivariate techniques, SEM accounts for measurement errors and provides explicit estimates of error variances and hence improves the accuracy of models (Byrne, 2016; Kline, 2016). While SEM has become a popular methodology over the years a key drawback cited in the literature is the need for large sample sizes. While there is no consensus in the literature as to what constitutes as a suitable sample size, estimates of over 200 are generally considered sufficient (Hoogland & Boomsma, 1998; Bagozzi & Yi, 2012; Kline, 2016). In addition ratio estimates of 5-10 observations per estimated parameter are also considered acceptable for SEM (Boomsma, 1985). Given the sample size for this study is N=1010 with country subsamples a minimum of N= 250, the sample size is considered sufficient for the analysis to run well and ratio estimates of N=180 are also well within the actual sample size used.

### **5.6.1 Analysis Strategy**

The SEM analysis for this study is conducted in three main stages. The first stage is centred on providing a CFA incorporating a measurement model. The measurement model provides an indication of the suitability of observed variables to measure unobserved variables using latent variable structural equation modelling (Jöreskog, 1993). The second stage involves the creation of the structural model, comprising of the interrelations among latent constructs as well as the observed variables, providing a theory-driven hypothesized model (Boomsma, 2000; Gefen et al., 2011; Byrne, 2016; Kline, 2016). The third stage involves examining the moderating effects of consumer cosmopolitanism, product category involvement and national culture. SEM analysis is conducted using AMOS 24 software and moderation with an SPSS plugin PROCESS version 3.0.

The measurement and structural model have the same estimation and model fit indices as they are developed within the same SEM process, which is discussed below. The third stage of moderation is discussed separately as an alternative technique and software is used. The Maximum Likelihood (ML) estimation method is used due to its robustness against non-normality (Chou & Bentler, 1995; Hu & Bentler, 1998; Bagozzi, 2010; Iacobucci, 2010; Byrne, 2016; Kline, 2016; Hair et al., 2018).

While there is no agreement in the literature as to the best goodness-of-fit indices, a range of different types of indices have been included in line with best practice including; absolute ( $\chi^2$ ,  $\chi^2/\text{df}$ , RMSEA, SRMR, GFI) and incremental (CFI, TLI) fit indices (Kline, 2016). These fit indices are used as a guide to examine the structural model and overall model fit. It is acknowledged solely relying on model fit statistics to examine the structural model has a number of limitations (Barrett, 2007). Therefore, threshold values and the use of model fit statistics are examined subjectively and in relation to theoretical positionings. Concerns have been raised regarding fit indices, where they may show good model fit but theoretically the model may be poorly structured (Jöreskog, 1993; Hooper et al., 2008). Addressing these concerns, this study examines the structural model through fit indices (tentatively using threshold values) within a wider theoretical framework.

#### **5.6.1.1 Absolute Fit Indices**

Absolute fit indices compare the hypothesized model with no model at all, providing an indication of model fit on the sample data (McDonald & Ho, 2002; Hooper et al., 2008; Iacobucci, 2009). A common test to measure model fit is the chi-square ( $\chi^2$ ) test, which determines whether the hypothesized model exactly fits the population. However, limitations in its use with larger samples sizes (above 400) and with non-normal data have



led researchers to include a wider range of goodness-of-fit measures to provide a more accurate reflection of model fit (Bentler & Chou, 1987; Jöreskog, 1993; Iacobucci, 2009; Byrne, 2016).

Although the chi-square statistic ( $\chi^2$ ) is a common measure of model fit, it has limitations in its application due to its sensitivity to sample size. This could be a concern with this study and the relatively large sample size of 1010. To address concerns of sample size the normed chi-square (including degrees of freedom) is commonly added as an additional measure ( $\chi^2/\text{df}$ ), (Wheaton et al., 1977). Although considered an old-fashioned measure with no standard threshold levels (Kenny, 2015), it is widely used as a model fit measure. This study adopts acceptable ratios ranging from less than 5.0 (Diamantopoulos & Siguaw, 2013) for a reasonable fit and less than 2.0 for a good fit (Tabachnick & Fidell, 2007; Hair et al., 2018).

The root mean square error of approximation (RMSEA) has become a more informative fit index over the years as it takes into account the number of parameter estimates (Boomsma, 2000; Stieger et al., 2007; Diamantopoulos & Siguaw, 2013). This measure shows model fit of the populations covariance matrix based on the optimal number of parameter estimates (Byrne, 1998). A range of cut-off points have been suggested where less than 0.08 is considered an acceptable fit (MacCallum et al., 1996) and less than 0.06 a good fit (Hu & Bentler 1999).

The standardised root mean square residual (SRMR) has increasingly been used in more recent studies (Iacobucci, 2010). It is defined as the standardized 'square root of the difference between the residuals of the sample covariance matrix and the hypothesised covariance model' (Hooper et al., 2008:54). The SRMR is not affected by model

complexity and is more sensitive to model misspecification. Recommendations given by Hu and Bentler (1999) suggest values equal to or below 0.08 as showing good fit with values closer to 0 (perfect fit) an increasingly better fit. Similarly, Byrne (1998) suggests values equal to or less than 0.05 showing very good model fit.

The Goodness-of-Fit measure (GFI) examines the hypothesized covariance model and the proportion of variance it accounts for (Tabachnick & Fidell, 2007; Hooper et al., 2008). It was initially developed as an alternative to the chi-square ( $\chi^2$ ) test (Jöreskog, 1993). While it has traditionally been used in studies it is sensitive to sample size and considered to show upward bias to larger samples. However, given its popularity in the literature has been included in this study to show a wide range of model fit indices. GFI values equal to or greater than 0.90 are generally accepted to show good model fit (Hu, & Bentler, 1999).

#### **5.6.1.2 Incremental Fit Indices**

In comparison to absolute statistics, incremental statistics compare the hypothesized model to a baseline model which assumes all latent variables are uncorrelated (McDonald & Ho, 2002; Hooper et al., 2008; Kline, 2016). The comparative fit index (CFI) is a common index used in a number of studies to assess this, and was chosen due to its lesser insensitivity to sample size compared to other incremental statistics (Bentler, 1990; Fan et al., 1999). CFI measures equal to or greater than 0.95 are generally considered to show a good fit (Hu & Bentler, 1999). The Tucker-Lewis index (TLI) is additionally an incremental fit index (Bentler, 1990). Model fit is based on a comparison of chi-square ( $\chi^2$ ) values from the hypothesised model and baseline model (Hooper et al., 2008). TLI

values equal to or greater than 0.95 generally indicate good model fit (Bentler & Hu, 1999).

These model indices have therefore been chosen due to their relative stability with larger sample sizes, model specification and parameter estimates (Hu & Bentler, 1999; Hooper et al., 2008; Kline & Rex, 2011; Hair et al., 2018). Furthermore, these indices are used collectively to overall examine model fit and hence reduce issues with reliance on just one measure. A summary of measures can be seen in Table 5.7.

**Table 5.7 Summary of model fit indices**

Index	Full Name	Acceptable Threshold	Source
$\chi^2$	Chi-Square	Affected by sample size (>400). Low $\chi^2$ relative to degrees of freedom, $p < 0.05$	Bentler & Bonnet (1980)
$\chi^2/df$	Normed Chi-Square	$\leq 5$ reasonable fit $\leq 2$ good fit	Diamantopoulos & Sigauw (2013) Tabachnick & Fidell (2007)
<b>CFI</b>	Comparative Fit Index	$\geq 0.95$	Hu & Bentler (1999)
<b>TLI</b>	Tucker Lewis Index	$\geq 0.95$	Hu & Bentler (1999)
<b>GFI</b>	Goodness of Fit	$\geq 0.90$	Hu & Bentler (1999)
<b>SRMR</b>	Standardised Root Mean Square Residual	$\leq 0.05$ excellent fit $\leq 0.08$ good fit	Byrne (1998) Hu & Bentler (1999)
<b>RMSEA</b>	Root Mean Square Error of Approximation	$\leq 0.08$ acceptable fit $\leq 0.06$ good fit	MacCallum et al. (1996) Hu & Bentler (1999)

### 5.6.2 Stage 1. Measurement Model (CFA).

The initial stage involves the development of a measurement model and the validation of observed variables to correctly relate to the unobserved (latent) variables. This stage

consists of five key steps; Model specification, identification, estimation, testing fit and respecification (Diamantopoulos et al., 2008; Iacobucci, 2009; Bagozzi, 2010; Byrne, 2016; Kline, 2016). Model specification is initially conducted using survey items discussed in Chapter five, to conduct a CFA through SEM. The latent variables; ELOYALTY, ETRUST, ERS, EAC and EPRI are added to the model followed by the moderating variables of COSMO (consumer cosmopolitanism) and INV (product category involvement). Culture was not included due to its categorical nature and identification was made using dimensions of individualism and collectivism from Hofstede's dimensions of cultures (Hofstede, 1983, 2001), therefore mitigating the need to directly observe the culture variable. This measurement model was used in the ALL dataset for clothing and electrical datasets (N=1010). These were further divided into 4 specific country datasets: China (n=250), India (n=250), UK (n=253) and US (n=257), to allow for country comparisons.

Model identification is then assessed to ensure the sample size is sufficient for the parameters to be estimated successfully (Kline, 2016; Hair et al., 2018). The large sample size of N=1010 and country subsamples of n= 250 plus, are above recommended limits stated in the literature as discussed previously. Statistical confirmation was additionally made with the formula  $\frac{1}{2}[p(p+1)]-k > 1$ , where p refers to the number of measured items (p= 8) and k the number of parameters to be estimated (k= 33), (Bentler & Chou, 1987). The sample covariance matrix for the dataset yielded 11.5 samples moments [ $\frac{1}{2}(56-33)$ ], which was positive and greater than 1 and therefore acceptable. Model estimation as mentioned earlier is based on ML estimates given its robustness in producing reliable estimates even with non-normal data (Chou & Bentler, 1995; Iacobucci, 2009; Byrne, 2016; Kline, 2016; Hair et al., 2018).

The fit of the measurement model is then tested using the model fit indices discussed in the earlier section and is conducted at two levels. The single construct measurement level examines the multidimensionality of each of the theoretical constructs using goodness-of-fit-statistics to assess the suitability of the observed variables in representing the unobserved variables (Ullman & Bentler, 2012; Byrne, 2016; Kline, 2016). The second level additionally examines the relationships between the unobserved variables through the full measurement model which is further tested for reliability, validity and unidimensionality issues (Ullman & Bentler, 2012; Byrne, 2016; Kline, 2016; Hair et al., 2018).

Model respecification involves adjustments to the measurement model to improve model fit indices. In addition, indicators with high modification indices ( $>20$ ) and standardised residuals (t-values  $>2.58$ ) are examined and removed if considered a source of model misspecification (Jöreskog, 1993; Byrne, 2016). These give an indication of which indicators may not be a strong reflection of the related latent variable. While the values may identify possible causes of concern in terms of parameter estimates that may be misspecified, modification indices and standardised residuals are examined individually and only removed if there is a theoretical alongside a statistical justification to do so (Jöreskog, 1993; Fan et al., 1999; Bagozzi, 2010; Byrne, 2016).

#### **5.6.2.1 Invariance**

A key concern with international studies relates to the examination of identical constructs across countries and the establishment of measurement equivalence to facilitate meaningful cross-country comparisons (Steenkamp & Baumgartner, 1998; Byrne & Campbell, 1999; Byrne & Van de Vijver, 2010; Kankaraš & Moors, 2010; Milfont &

Fischer, 2010; Rutkowski & Svetina, 2014; Hox et al., 2017). Prior to analysis model respecification as discussed earlier is conducted to provide the best fitting model for the data. Multi-group analysis is conducted as part of the CFA process to simultaneously examine the country datasets (China, India, UK and US). Configural invariance is initially examined where parameters are freely estimated across groups with no constraints imposed and seeks to examine if latent variables are manifested equally across the four country groups. This configural model provides a multigroup representation of the baseline models, and measurement invariance is said to hold if the model indices show a good fit (Kankaraš & Moors, 2010; Byrne, 2016; Kline, 2016; Hox et al., 2017).

In addition, construct level metric invariance is measured by imposing constraints on the model and seeks to identify the extent of equality of parameters across the four countries. A goodness of fit difference test is run using values from an unconstrained (no regression weights set) and fully constrained model (regression weights set to 1). If the difference present is significant where the change in the comparative fit index is equal to or less than 0.01 or the change in the root mean square error value is less than or equal to 0.015 ( $\Delta CFI \leq 0.01$  and  $\Delta RMSEA \leq 0.015$ ), then metric invariance in present (Cheung & Rensvold, 2002; Byrne & Van de Vijver, 2010; Byrne, 2016; Kline, 2016). While it is common for nested model comparisons to be examined using chi-square difference tests, this study uses goodness-of-fit difference tests instead due to the larger sample size. Changes in the values of CFI and RMSEA have been selected given their robustness to sample size (Cheng & Rensvold 2002). Using goodness-of-fit tests addresses limitations of chi-square difference tests in nested model comparison given its sensitivity to sample size.

#### **5.6.2.2 Common Method Variance.**

Common method variance is related to the use of a self-reporting, single instrument in the measurement process (Podsakoff, 2003; Chang et al., 2010; Baumgartner & Weijters, 2012; MacKenzie & Podsakoff, 2012; Viswanathan & Kayande, 2012; Fuller et al., 2016). According to Podsakoff (2003) common method variance may be a serious concern when data is collected from a single source and can arise from a variety of sources (common rater effects, item characteristic effects, item context effects and measurement context effects). The method biases that are of particular concern in this study are those identified by Podsakoff and Organ (1986) and include common rater effect (use of single self-report measure) and measurement context (online survey to collect data in the same measurement context). Given this study is based on a single research instrument in the form of a cross-sectional online survey with the same respondents providing information on both the independent (EPRI) and dependent variables (ELOYALTY, ETRUST, ERS, EAC), potential issues regarding common method bias could arise. The use of a single online survey could result in systematic measurement errors either inflating or deflating the observed relationships between constructs or creating biased estimates of construct validity and reliability resulting in potentially false correlations and inaccurate interpretations of results (Podsakoff, 2003; Chang et al., 2010; Baumgartner & Weijters, 2012; Viswanathan & Kayande, 2012; Fuller et al., 2016). This is more acute when there is reliance on one data source and the possibility of respondents engaging in satisficing behaviour, providing inadequate responses (MacKenzie & Podsakoff, 2012).

There is debate in the literature on the significance of common method variance as an issue, with some researchers arguing associated problems are exaggerated (Crampton & Wagner III, 1994; Lindell & Whitney, 2001; Spector, 2006; Chan, 2009). However, there

has been a more recent trend particularly in the marketing literature of addressing issues related to common method variance including its identification and inclusion of control measures (Chang et al., 2010; Baumgartner & Weijters, 2012; MacKenzie & Podsakoff, 2012). Common method variance is addressed in terms of procedural techniques (prior to data collection) and statistical methods (post-data collection). Procedural techniques include ensuring anonymity, mixing the format of questions and reducing anxiety for respondents by simplifying wording (Podsakoff et al., 2003). The measurement model is examined (post-data collection) for any common method variance issues using the unmeasured common latent factor technique (CLF) and the directly measured latent factor technique (through social desirability bias) in accordance with Podsakoff et al. (2003).

### **5.6.2.3 Bootstrapping**

As mentioned in section 5.3.2 Normality, bootstrapping (due its non-reliance on normality) is included in the analysis to address issues of non-normality and to additionally check the reliability of the ML estimation technique (Bollen & Stine, 1992; West et al., 1995; Yung & Bentler, 1996; Nevitt & Hancock, 2001; Kline, 2016). The nonparametric bootstrap also known as ‘naïve’ bootstrap is employed to examine the variation in standard errors (SE) between the ML and bootstrapping techniques. The Bollen & Stine bootstrap is used additionally to assess model fit (Bollen & Stine, 1992). It can provide corrected p-values for the chi square statistic which may be inflated due to non-normality (using the ML estimation technique) to assess model fit (Bollen & Stine, 1992; Nevitt & Hancock, 2001). The software package AMOS 24 provides functionality to conduct both the naïve bootstrap and the Bollen-Stine bootstrap and in accordance with recommendations outlined by Nevitt & Hancock (2001), 2000 bootstrap samples are used



to ensure stable probability estimates with 90% bias corrected confidence intervals. The Bollen-Stine test is based on the null hypotheses whereby, if the p-value is insignificant ( $>0.05$ ), the model is accepted. However, issues with large sample sizes have been highlighted which could be problematic for this study and so acceptance or rejection of the model will be based on a range of indices (Cheung & Rensvold, 2002; Kim & Millsap, 2014; Kline, 2016). Bootstrapping using the Bollen & Stine test is applied to both the measurement and structural model.

### **5.6.3 Stage 2. Structural Model.**

The structural model is developed from the respecified measurement model following confirmation of reliable indicators to strongly reflect latent variables and the establishment of measurement invariance alongside control measures for CMV. Relationships between latent variables are modelled through a theory-driven path diagram resulting in a structural model (Bentler, 1988; Bagozzi, 2010; Byrne, 2016; Kline, 2016). Model fit indices are used in the same manner as with the measurement model and provide an indication of model fit and the robustness of path relationships. While the measurement model provides an indication of the strength of indicators in reflecting theoretical constructs (latent variables), the structural model provides specifications on the relationships between the theoretical constructs and hypothesised relationships that can be tested through model fit indices. The structural model is therefore able to indicate how well the data supports the hypothesised relationships (Bentler & Chou, 1987; Iacobucci, 2009; Ullman & Bentler, 2012; Byrne, 2016; Kline, 2016). The sequence of conducting the analysis is of key significance as structural model development can only occur following measurement model respecification where the optimum measurement model is provided (Byrne, 2016). Similarly to the CFA structural models are examined by sector

(clothing and electrical dataset) and further by country (China, India, UK and the US). Furthermore, invariance and bootstrapping tests are carried out as previously discussed on the structural models, providing an indication of model fit and robustness of hypothesized relationships across countries.

#### **5.6.4 Stage 3. Moderation**

The last stage of the analysis examines the moderating effects of consumer cosmopolitanism, product category involvement and national culture on the hypothesised relationships examined within the structural model stage. While the structural model examines the relationships between the theoretical constructs, moderation seeks to examine the extent of influence exerted by moderating variables on the relationship path (Baron & Kenny, 1986; Edwards & Lambert, 2007; Preacher et al., 2007; Hayes & Preacher, 2013; Kline, 2016; Hayes, 2018). Moderated mediation is conducted on the paths  $EPRI \rightarrow ETRUST \rightarrow ELOYALTY$ ,  $EPRI \rightarrow ERS \rightarrow ELOYALTY$  and  $EPRI \rightarrow EAC \rightarrow ELOYALTY$ .

Hayes' PROCESS V3.0 macro tool in SPSS is used, to conduct a first stage, conditional process analysis. As explained by Hayes (2018), this examines moderation and mediation within an integrated approach and so allows for a more complete and holistic analysis. This software was chosen as it enables a more comprehensive analysis of multiple mediators and moderators simultaneously, a function not widely found in other software (Hayes, 2018). Analysis is focused on moderated mediation rather than on simple moderation as the moderating effects of consumer cosmopolitanism, product category involvement and national culture are examined on the indirect effects of EPRI on ELOYALTY through the mediators of ETRUST, ERS and EAC. The strength of this

technique focuses on how an indirect effect is moderated rather than a direct relationship and hence can give a more accurate reflection of the mechanisms involved.

This approach is adopted to address issues involved with multi-group median split analysis typically used in SEM including artificial categorisation of groups, smaller subsamples and individual analysis on a path by path basis (Irwin & McClelland, 2003; McClelland et al., 2015; Hayes, 2018). This approach also circumvents the need to dichotomize continuous variables (consumer cosmopolitanism and product category involvement) providing a more accurate analysis.

To test for moderated mediation a new model was created as none of the 98 models supplied with Process 3.0 were an exact fit. This model included 1 Dependent variable (ELOYALTY), 1 independent variable (EPRI) and 3 multiple mediators (ETRUST, ERS and EAC) and 1 moderator (see Appendix J). The model was rerun for each moderator (consumer cosmopolitanism, product category involvement and national culture) allowing the moderating effect of one moderator on the indirect effect to be examined individually. This model was then replicated across each country and across both sectors.

National culture is examined using a categorical dummy variable with a binary coding of 1 and 0. The US and UK were coded as '1' to reflect a high level of individualism and China and India coded as '0' to reflect a low level of individualism. Consumer cosmopolitanism was based on a continuous variable comprising of a composite dummy variable of 12 items and product category involvement a composite dummy variable of 3 items.

#### **5.6.4.1 Index of Moderated Mediation:**

The index of moderated mediation (IMM) and confidence interval levels (CI) are used to test for moderated mediation, providing a more robust and simpler test compared to other methods (Hayes, 2018). In accordance with Hayes (2018) it; provides a single inferential test, directly quantifies the relationship between the moderator and indirect effect, and can express any uncertainty about the moderator in the form of a CI. A moderation effect on an indirect path is said to have occurred when the value of the index of moderated mediation (IMM) does not equal 0 and the range between the lower and upper CI does not include 0. Additionally, a spotlight analysis is conducted at focal points to better understand any moderating effects on the indirect paths involving EPRI (Aiken et al., 1991; Bauer & Curran, 2005; Spiller et al., 2013; Krishna, 2016). Using a pick-a-point approach involves examining the interaction effects at various low, medium and high levels of the moderator (16<sup>th</sup>, 50<sup>th</sup> and 84<sup>th</sup> percentile of distribution) and conducting inference (Aiken et al., 1991; Krishna, 2016). As discussed by Hayes (2018), this is the most suitable approach for probing moderation of mediation. Visual representations of the spotlight analysis were further provided to graphically illustrate any moderating effects.

### **5.7 Summary**

The aim of this chapter was to confirm the robustness and quality of the data prior to statistical analysis in the next two chapters. The first part of the chapter examined data cleaning issues and steps taken to ensure the quality of the data. No issues with missing data were reported due to the inclusion of forced responses in the survey instrument. This was followed by an examination of outliers using the Mahalobonis D test. It was decided to acknowledge the existence of outliers and to include them in the study. Given the

relatively large sample size (1010) with limited impact on structural model fit statistics and normality, the inclusion of outliers was not considered detrimental to the overall statistical analysis. Normality was then examined using the Mardia coefficient 154.441 (clothing), 171.847 (electrical) demonstrating non-normal data. This was expected given the design of the study examining consumer attitudes towards loyalty with e-tailers consumers are currently loyal to. To address concerns of non-normality Bootstrapping is included in the analysis strategy. The next section provided descriptive statistics on the respondents by country and demographics revealing information on the sample population. There was strong evidence from external country data on the representativeness of the sample in comparison to the total online shopping population. Following on from this social desirability bias was examined using the Pearson correlation coefficient. Surprisingly, no issues with social desirability bias were detected and corrective measures not deemed necessary. The final section explained the use of the SEM methodology to analyse the data and highlighted its strength in comparing models and empirical data through model fit indices. Thereby providing an indication of the strength of measurement indicators and theoretical construct hypothesized relationships. The analysis strategy was explained in three stages providing the structure for the subsequent analysis in the next two chapters.

## **CHAPTER SIX**

### **6.0 MEASUREMENT MODEL**

#### **6.1 Introduction**

This chapter progresses stage one of the analysis identified in Chapter five and examines the suitability of the measurement model through (confirmatory factor analysis) CFA. The first section identifies a range of issues regarding the quality of the measurement model; unidimensionality, validity, reliability, modification indices and measurement error. These areas are individually examined with a rationale for how they will be addressed in the study. Measurement model specification is then examined at the single level construct level incorporating goodness-of-fit indices to test model fit alongside tests of unidimensionality, validity and reliability. This is examined at an aggregate level and across all four countries in both the clothing and electrical dataset. The next section examines the full measurement model using the same process with the additional inclusion of discriminant validity. This is then followed by a section on model re-specification and focuses on modification indices and standard errors to provide a more robust measurement model. Internal consistency is examined through Cronbach's alpha co-efficient ( $\alpha$ ) and the final measurement model defined. Bootstrapping is then examined in the next section due to the non-normality of the data to examine the robustness of the ML estimation technique. This is followed by invariance testing as an additional measure to examine the robustness of the measurement model across countries. The last section investigates the issue of common method variance and includes the unmeasured common latent factor technique and directly measured latent factor technique, concluding with a summary at the end of the chapter.

## **6.2 Unidimensionality, Validity and Reliability**

Confirmatory factor analysis (CFA) is dependent on establishing unidimensionality, construct validity and reliability (Bentler & Chou, 1987; Hox & Bechger, 1998; Jarvis et al., 2003). This study examines construct validity through convergent and discriminant validity and reliability through composite reliability and internal consistency (Cronbach, 1951; Fornell & Larcker, 1981; Peter, 1981; Hair et al., 2018). Once established through a variety of tests confidence in the measurement model can be determined. This is essential to prior analysis involving the structural model and provides a strong foundation for subsequent analysis. If the measurement model is confirmed as having good validity and reliability greater confidence can be placed in the integrity and quality of results obtained (Kline, 2016).

### **6.2.1 Unidimensionality**

Unidimensionality refers to the ability of multiple indicators to define an individual construct. This is necessary for CFA as it confirms the ability of individual indicators to be associated to a particular construct (Anderson & Gerbing, 1988). This assumption is crucial according to measurement theory as it provides confidence multiples indicators are indeed measuring the same latent factor (Hattie, 1985). While there is no agreement on the tests to examine unidimensionality, this study adopts the approach suggested by Zainudin (2015) and focuses on (i) standardised factor loadings, (ii) squared multiple correlations ( $R^2$ ) and (iii) model fit indices. Given this is a familiar approach adopted in a number of SEM studies and incorporates indices based on factor analysis aligns well with this study (Kline, 2016; Byrne, 2016). Furthermore examining unidimensionality across a range of three different tests removes issues of reliance on a single test. This provides a greater overall inspection of unidimensionality and provides additional support

where model estimation is problematic. Model estimation is not available with the 3-item constructs (EPRI, ERS, EAC and involvement). In these cases factor loadings and square multiple correlations ( $R^2$ ) are examined which should be sufficient.

Standardised factor loadings represent the relationship between a latent factor and its corresponding individual indicators. Acceptable values are above the 0.7 threshold which indicate an individual indicator is strongly related to the latent factor providing strong support for its retention (Byrne, 2016). Some studies have advocated thresholds of above 5.0 in some cases (Hair et al., 2018). If factor loadings are below this value, evaluation of retaining the indicator is made in relation to other measures. This could suggest poor unidimensionality and could indicate a need to remove the indicator (Tabachnick & Fidell, 2007; Kline, 2016). Squared multiple correlation ( $R^2$ ) values are additionally considered and denote the amount of variance caused by the individual indicator on the latent factor expressed as the percentage of total variance (Hattie, 1985; Kline, 2016). These values are considered as an index of unidimensionality where higher levels of variance suggest greater unidimensionality. Essentially, the more variance attributed to the latent factor from the individual indicator the more likely the individual indicators are unidimensional (Hattie, 1985). Acceptable levels of 40% and above are considered good which suggest an item causes at least 40% of the variance and therefore, values of  $R^2 \geq 0.4$  are considered acceptable (Carmines & Zeller, 1979).

A range of model fit indices are examined and are argued by Hattie (1985) to be a good indication of unidimensionality. Emerging from latent trait theory, the emphasis on item and parameter estimates with a range of goodness-of-fit indices provide an effective index of unidimensionality. For this study the following model fit indices are used with



acceptable thresholds shown ( $\chi^2$ ,  $\chi^2/df \leq 5$ ,  $p \leq 0.05$ ,  $CFI \geq 0.95$ ,  $TLI \geq 0.95$ ,  $GFI \geq 0.90$ ,  $SRMR \leq 0.08$ ,  $RMSEA \leq 0.08$ ).

### 6.2.2 Construct Validity

Construct validity is examined through both convergent validity using average variance extracted (AVE) and discriminant validity. Both these measures denote the overall construct validity and essentially demonstrate the soundness of individual indicators in reflecting the overall strength of the construct (Peter, 1981; Segars & Grover, 1993; Hair et al., 2018). This study examines the construct validity of ; ELOYALTY, ETRUST, ERS, EAC, EPRI, consumer cosmopolitanism and product category involvement. Convergent validity refers to the correlation between individual indicators in measuring the associated latent factor. If individual indicators are valid measures of the latent factor, the individual indicators should covary highly (Campbell & Fiske, 1959; Kline, 2016). Convergent validity is measured through the average variance extracted (AVE). It is accepted values above 0.5 exhibit convergent validity and suggest covariances between individual indicators is high (Campbell & Fiske, 1959; Hair et al., 2018). Discriminant validity relates to the distinctiveness of constructs and their individual indicators. Essentially the CFA model should contain constructs and measures that are distinct from each other (Campbell & Fiske, 1959; Fornell & Larcker, 1981). If discriminant validity is present individual indicators should demonstrate low correlation with other indicators. Given this measure examines distinctions between constructs, is therefore only examined in the full CFA and not the single CFA. Discriminant validity is established when the maximum shared variance (MSV) is less than the average variance extracted (AVE) (Byrne, 2016; Hair et al., 2018). In addition and according to Fornell and Larcker (1981), discriminant

validity is evident when the square root of the AVE of each construct is greater than its correlation with any other construct.

### **6.2.3 Reliability**

Composite reliability (CR) examines the reliability of a set of items associated with a latent factor. It calculates the amount of variance accounted for by all individual indicators thereby providing an indication of the suitability of the scale in accurately reflecting the latent construct (Byrne, 2016; Hair et al., 2018). The higher the value the greater amount of variance and so the more suitable the composite set of indicators. (Graham, 2006; Peterson & Kim, 2013). Acceptable thresholds include CR values equal to or greater than 0.7 (Hair et al., 2018). Furthermore CR values can provide an indication of internal consistency. The Cronbach alpha co-efficient ( $\alpha$ ) is one of the most widely used co-efficients to examine internal consistency and is often cited in SEM studies (Santos, 1999). Values above 0.7 are often cited as indicating good internal consistency (Cronbach, 1951; Hair et al., 2018). However, some studies argue CR may be a better measure of internal consistency as it takes into account varying factor loadings whereas the Cronbach alpha co-efficient ( $\alpha$ ) assumes the same factor loadings for all items (Graham, 2006; Peterson & Kim, 2013). Given the popularity of both these measures in the SEM literature both composite reliability and Cronbach's alpha co-efficient values are used in the analysis.

Additionally modification indices and measurement errors are examined with the re-specified model to confirm a good model fit. Modification indices (MI) indicate how model fit would improve if associated values were removed (Byrne, 2016). Essentially MI values indicate the change in chi-square ( $\chi^2$ ) if parameters were free instead of

constrained (Kenny, 2015). Extremely high modification indices are cautiously examined individually. High MI's were removed incrementally with strong theoretical justification before model fit was re-examined (Jarvis et al., 2003; Iacobucci, 2010; Ullman & Bentler, 2012; Byrne, 2016). Measurement error residuals indicate discrepancies between hypothesised and estimated measurement models. Generally measurement error residual values equal to or less than 2.58 are considered acceptable (Byrne, 2016).

In accordance with a number of studies a two step process is adopted for the stage one analysis (Fornell & Larcker, 1981; Anderson & Gerbing, 1988; Kline, 2016; Byrne, 2016; Hair et al., 2018). A single CFA is initially conducted which examines; unidimensionality (through factor loadings,  $R^2$  and model fit), convergent validity (AVE) and composite reliability (CR) (Campbell & Fiske, 1959; Awang, 2015). This is followed by the full CFA (including model respecification) which examines: unidimensionality (through factor loadings,  $R^2$  and model fit), convergent validity (AVE), composite reliability (CR) and additionally discriminant validity ( $MSV < AVE$  and  $\sqrt{AVE}$ ) (Fornell & Larcker, 1981). Internal consistency is examined through the Cronbach alpha ( $\alpha$ ) (Cronbach, 1951). Additionally concerns regarding model misspecification are addressed through the examination of modification indices (MI) and measurement error residuals (Byrne, 2016). An overview of the main thresholds used to examine unidimensionality, validity and reliability are shown in Table 6.1

**Table 6.1 Summary of Measurement Model Evaluation Criteria**

	Measure	Acceptable threshold	Source
<b>Unidimensionality</b>	Standardised Factor Loadings	$\geq 0.7$	Hair et al. (2018)
	Squared Multiple Correlations ( $R^2$ )	$\geq 0.4$	Carmines & Zeller (1979)
	Model Fit	$(\chi^2, \chi^2/df \leq 5, p \leq 0.05, CFI \geq 0.95, TLI \geq 0.95, GFI \geq 0.90, SRMR \leq 0.08, RMSEA \leq 0.08)$	Bentler & Bonnet (1980), Diamantopoulos & Siguaw (2013), Tabachnick & Fidell (2007), Hu & Bentler (1999), MacCallum et al. (1996), Byrne 1998
<b>Convergent Validity</b>	Average Variance Extracted (AVE)	$\geq 0.5$	Byrne (2016)
<b>Discriminant Validity</b>	Maximum shared variance (MSV) and average variance extracted (AVE)	$MSV < AVE$	Byrne (2016)
	Square root of AVE	Square root of the AVE of each construct is greater than its correlation with any other construct.	Fornell & Larker (1981)
<b>Composite Reliability</b>	Composite Reliability (CR)	$\geq 0.7$	Hair et al. (2018)
<b>Cronbach's alpha</b>	Cronbach alpha co-efficient ( $\alpha$ )	$\geq 0.7$	Cronbach (1951)
<b>Modification Indices</b>	(MI)	Highest values	Byrne (2016)
<b>Measurement Error Residual</b>	Error ( $e_n$ )	$\leq 2.58$	Byrne (2016)

### 6.3 Single Construct Measurement Model

A single CFA is initially employed to assess the adequacy of individual constructs and their related indicators providing an indication of their suitability as measurement instruments. Examination is conducted at three levels. First unidimensionality is examined through standardised factor loadings, squared multiple correlations and model fit. Second validity and reliability issues are inspected to further confirm the suitability of measures. This is conducted with the ALL (aggregate) dataset for both the clothing and electrical sectors and then specifically for each country; China, India, UK and US.

### 6.3.1 ELOYALTY (Online Loyalty)

The single measurement model for ELOYALTY is shown in Figure 6.1 and comprises of 5 items. The same CFA is used in both the clothing and electrical datasets (LOY1\_C1-LOY1\_C5: clothing dataset, LOY1\_E1 – LOY1\_E5: electrical dataset).

**Figure 6.1 Single CFA for ELOYALTY**

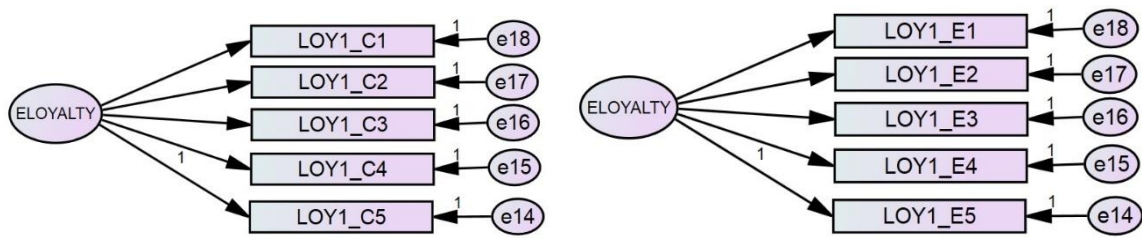


Table 6.2 displays values to examine unidimensionality for both the clothing and electrical dataset comprising of standardised factor loadings, squared multiple correlations ( $R^2$ ) and model fit. Standardised factor loadings for the clothing sector are all above 0.7 threshold with  $R^2$  above 0.4 in the ALL dataset and the individual country datasets with an exception of 1 item in China. The lowest factor loading of 0.65 is seen for item 5 in the China dataset with an  $R^2$  value of 0.42. Given the borderline value and strong factor loadings in the other countries, this item is retained in the China dataset. This is not reflected in the electrical dataset where item 5 in China shows a factor loading of 0.71 ( $R^2 = 0.51$ ) reaching the minimum acceptable threshold. The electrical dataset contains standardised factor loadings exceeding 0.7 and  $R^2$  values above 0.4 both in the ALL dataset as well as country datasets. There is good evidence to support the majority of observable variables (indicators) accounting for between 50% - 91% of the variance in the ELOYALTY construct (latent variable) as standardised factor loadings range from

0.71 to 0.95 in both the clothing and electrical sectors providing support for the inclusion of all five ELOYALTY items.

While factor loadings are strong, model fit indices are more mixed ranging from satisfactory to poor fit across the clothing and electrical datasets for the ELOYALTY construct as shown in Table 6.2. Satisfactory model fit is considered when at least 3 of the measures fall within acceptable ranges and good model fit when 3 or more exceed acceptable ranges, although individual judgements are relied on (Hair et al., 2018). The ALL dataset shows poor model fit for ELOYALTY in the clothing sector ( $\chi^2 = 151.749$ ,  $\chi^2/df = 30.350$ ,  $p=0.000$ ,  $CFI = 0.953$ ,  $TLI = 0.906$ ,  $GFI = 0.944$ ,  $SRMR = 0.381$ ,  $RMSEA = 0.171$ ). Four model indices are beyond acceptable thresholds  $\chi^2/df = 30.350$ ,  $TLI = 0.906$ ,  $SRMR = 0.381$ ,  $RMSEA = 0.171$ ). A slightly better model fit is seen for ELOYALTY in the electrical sector ( $\chi^2 = 84.842$ ,  $\chi^2/df = 16.968$ ,  $p=0.000$ ,  $CFI = 0.978$ ,  $TLI = 0.957$ ,  $GFI = 0.969$ ,  $SRMR = 0.023$ ,  $RMSEA = 0.126$ ), with two model indices beyond acceptable thresholds ( $\chi^2/df = 16.968$  and  $RMSEA = 0.126$ ).

**Table 6.2 Single CFA ELOYALTY (Factor loadings, R<sup>2</sup> and model fit)**

		ALL N=1010		China n=250		India n=250		UK n=253		US n=257	
Measurement Items	Indicator	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>
Clothing											
1 Consider it my first choice to buy clothes?	LOY1_C1	0.75	0.57	0.78	0.61	0.82	0.68	0.73	0.53	0.73	0.54
2 Encourage friends and relatives to buy clothes from it ?	LOY1_C2	0.81	0.66	0.81	0.66	0.87	0.78	0.79	0.62	0.81	0.66
3 Recommend it to someone who seeks your advice ?	LOY1_C3	0.88	0.78	0.81	0.65	0.86	0.75	0.88	0.77	0.93	0.86
4 Say positive things about it to other people?	LOY1_C4	0.83	0.59	0.76	0.57	0.81	0.66	0.87	0.76	0.89	0.79
5 Purchase more clothes from it in the future ?	LOY1_C5	0.73	0.53	0.65	0.42	0.82	0.68	0.71	0.50	0.79	0.62
Electrical											
1 Consider it my first choice to buy electrical products?	LOY1_E1	0.79	0.63	0.79	0.63	0.80	0.63	0.77	0.59	0.81	0.66
2 Encourage friends and relatives to buy electrical products from it ?	LOY1_E2	0.85	0.72	0.86	0.74	0.81	0.66	0.83	0.69	0.89	0.80
3 Recommend it to someone who seeks your advice ?	LOY1_E3	0.92	0.84	0.87	0.76	0.91	0.82	0.91	0.83	0.95	0.91
4 Say positive things about it to other people?	LOY1_E4	0.86	0.73	0.76	0.58	0.90	0.80	0.89	0.80	0.86	0.75
5 Purchase more electrical products from it in the future ?	LOY1_E5	0.76	0.58	0.71	0.51	0.83	0.69	0.76	0.58	0.81	0.65
Factor loading - Standardised factor loading ( ≥0.7)		R <sup>2</sup> - squared multiple correlation ( ≥0.4) Acceptable thresholds ( )									

**Model Fit**

<b>Clothing</b>											
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	AVE	CR
ALL	151.749	5	30.350	0.000	0.953	0.906	0.944	0.381	0.171	0.643	0.900
China	17.524	5	3.505	0.004	0.979	0.958	0.973	0.028	0.100	0.584	0.875
India	21.568	5	4.314	0.001	0.982	0.963	0.964	0.023	0.115	0.699	0.921
UK	116.490	5	23.298	0.000	0.866	0.733	0.831	0.071	0.297	0.638	0.898
US	65.683	5	13.137	0.000	0.938	0.876	0.911	0.044	0.218	0.069	0.918
<b>Electrical</b>											
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	AVE	CR
ALL	84.842	5	16.968	0.000	0.978	0.957	0.969	0.023	0.126	0.702	0.921
China	41.921	5	8.384	0.000	0.952	0.903	0.935	0.038	0.172	0.640	0.899
India	21.142	5	4.228	0.001	0.983	0.967	0.970	0.020	0.114	0.725	0.929
UK	10.421	5	2.084	0.064	0.994	0.988	0.984	0.017	0.066	0.696	0.919
US	78.054	5	15.611	0.000	0.939	0.879	0.901	0.041	0.239	0.749	0.937

**Model fit indices with acceptable threshold levels:**  $\chi^2$  (chi square), df (degrees of freedom),  $\chi^2/df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$

**Validity and reliability:** AVE (average variance extracted)  $\geq 0.5$     CR (composite reliability)  $\geq 0.7$

China and India in the clothing sector show a good model fit with most indices reaching more than acceptable levels with only RMSEA and  $\chi^2/df$  levels considered weaker. In contrast, the UK ( $\chi^2 = 116.49$ ,  $\chi^2/df = 23.298$ ,  $p=0.000$ ,  $CFI = 0.866$ ,  $TLI = 0.733$ ,  $GFI = 0.831$ ,  $SRMR = 0.071$ ,  $RMSEA = 0.297$ ) and US ( $\chi^2 = 65.683$ ,  $\chi^2/df = 13.137$ ,  $p=0.000$ ,  $CFI = 0.938$ ,  $TLI = 0.876$ ,  $GFI = 0.911$ ,  $SRMR = 0.044$ ,  $RMSEA = 0.218$ ) in the clothing sector shows poor model fit for ELOYALTY with most indices below acceptable thresholds, most likely contributing to overall model fit weakness.

As mentioned previously model fit in the electrical sector for ELOYALTY is overall satisfactory with 4 indices in the ALL dataset exceeding minimum acceptable thresholds ( $CFI = 0.978$ ,  $TLI = 0.957$ ,  $GFI = 0.969$  and  $SRMR = 0.023$ ) which is likely to be attributable to the satisfactory model fit shown in China ( $\chi^2 = 41.921$ ,  $\chi^2/df = 8.384$ ,  $p=0.000$ ,  $CFI = 0.952$ ,  $TLI = 0.903$ ,  $GFI = 0.935$ ,  $SRMR = 0.038$ ,  $RMSEA = 0.172$ ) and India ( $\chi^2 = 21.14$ ,  $\chi^2/df = 4.228$ ,  $p=0.001$ ,  $CFI = 0.983$ ,  $TLI = 0.967$ ,  $GFI = 0.970$ ,  $SRMR = 0.020$ ,  $RMSEA = 0.114$ ), alongside good model fit in the UK ( $\chi^2 = 10.421$ ,  $\chi^2/df = 2.084$ ,  $p=0.064$ ,  $CFI = 0.994$ ,  $TLI = 0.988$ ,  $GFI = 0.984$ ,  $SRMR = 0.017$ ,  $RMSEA = 0.066$ ), where most indicators fall within acceptable ranges. The UK in particular shows very good model fit in the electrical sector for ELOYALTY and is surprising considering the weak model fit for ELOYALTY in the clothing sector. The US shows the weakest model fit out of all the countries and demonstrates a poor fit ( $\chi^2 = 78.054$ ,  $\chi^2/df = 15.611$ ,  $p=0.00$ ,  $CFI = 0.939$ ,  $TLI = 0.879$ ,  $GFI = 0.901$ ,  $SRMR = 0.041$ ,  $RMSEA = 0.239$ ), with four indices beyond acceptable threshold limits ( $\chi^2/df = 15.611$ ,  $CFI = 0.939$ ,  $TLI = 0.879$  and  $RMSEA = 0.239$ ). Unidimensionality cannot be established across all sectors and countries with mixed results evident from model fit. Individual items for ELOYALTY will need to be re-evaluated.

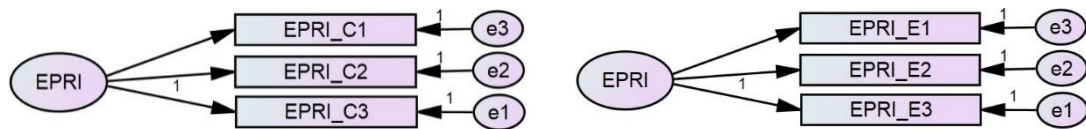


There is however, evidence for composite reliability and convergent validity across all sectors and countries given all CR values are above 0.7 and AVE values above 0.5 as shown in Table 6.2. Although results for model fit are varied ranging from good in the electrical UK sector, India and China clothing sector to weak in the US electrical sector and UK Clothing sector, support is provided from overall strong factor loadings and validity and reliability. Item 5 in the clothing China set has been noted for further examination in the full measurement model.

### 6.3.2 EPRI (Online Perceived Relationship Investment)

The single measurement model for EPRI can be seen in Figure 6.2 and comprises of 3 items. The same CFA is used in both the clothing and electrical datasets (EPRI\_C1-EPRI\_C3: clothing dataset, EPRI\_E1 – EPRI\_E3: electrical dataset).

**Figure 6.2 Single CFA for EPRI**



Model identification through empirical means is not possible with the EPRI construct and its 3 related indicators and so model fit statistics are not available. While a minimum of 3 indicators is generally required to attain model fit that is just identifiable, the model is not able to be identified (Hair et al., 2018). A number of possibilities may explain problems with model identification. A number of studies highlight the issue with SEM where for model identification to occur the number of knowns must outweigh the number

of unknowns (Bollen, 1989; Byrne, 2016). For example known values usually include variances and covariances of latent variables. Unknown values could include model parameters with factor loadings and error variances (Rigdon, 1995; Reilly, 1995; Reinartz et al., 2009). If more unknown values are present this prevents the solving of covariance structure equations and hence the model cannot be identified (Bollen, 1989). According to Kenny (2015), model identification may not occur if the correlation values between the constructs is equal to 0. This possibility is termed empirical under identification (Kenny, 2015). While the reasons for model identification are not determined in this study it could be related to the single CFA where a limited number of parameters are being estimated. Further investigation is conducted on this construct in the full measurement model where the model can be identified and model fit statistics are examined for EPRI.

Other indicators of unidimensionality are employed including standardised factor loadings and squared multiple correlations ( $R^2$ ). Convergent validity and composite reliability measures are examined as part of the single CFA for the EPRI construct. Standardised factor loadings are very strong and all above the 0.70 threshold in both the clothing and electrical datasets and across all countries ranging from 0.70 to 0.97, with correspondingly strong  $R^2$  values ranging from 0.7 to 0.95 (all above the 0.50 threshold), as shown in Table 6.3.

**Table 6.3 Single CFA EPRI (Factor loadings and R<sup>2</sup>)**

		ALL N=1010		China n=250		India n=250		UK n=253		US n=257	
Measurement Items	Indicator	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>
Clothing											
1 This clothing website makes efforts to increase regular customers' loyalty.	EPRI_C1	0.87	0.76	0.88	0.77	0.77	0.59	0.92	0.84	0.86	0.73
2 This clothing website makes various efforts to improve its tie with regular customers.	EPRI_C2	0.94	0.89	0.89	0.79	0.94	0.89	0.96	0.93	0.95	0.90
3 This clothing website really cares about keeping regular customers.	EPRI_C3	0.88	0.77	0.83	0.70	0.85	0.73	0.89	0.80	0.87	0.76
Electrical											
1 This electrical website makes efforts to increase regular customers' loyalty.	EPRI_E1	0.89	0.80	0.91	0.82	0.83	0.68	0.91	0.82	0.88	0.78
2 This electrical website makes various efforts to improve its tie with regular customers.	EPRI_E2	0.93	0.86	0.84	0.71	0.93	0.86	0.97	0.95	0.91	0.83
3 This electrical website really cares about keeping regular customers.	EPRI_E3	0.89	0.80	0.86	0.74	0.86	0.74	0.91	0.83	0.90	0.81
Factor loading - Standardised factor loading ( ≥0.7)    R <sup>2</sup> - squared multiple correlation ( ≥ 0.4) Acceptable thresholds ( )											

Additionally convergent validity is evident in both the clothing and electrical datasets across all countries with AVE values well above the recommended 0.5 threshold, ranging from 0.73 to 0.87 as shown in Table 6.4. Composite reliability is also present with across both sectors and all countries with CR values ranging from 0.89 to 0.95 and exceeding the 7.0 minimum acceptable level. While model fit statistics are not available for the single CFA for EPRI, there is very strong evidence from the standardised factor loadings, convergent validity and composite reliability values reinforcing the suitability of the 3 items for EPRI. Unidimensionality can be tentatively established through strong standardised factor loadings and R<sup>2</sup> Values. It has been noted to examine model fit statistics for the EPRI construct in the full CFA where parameter estimates may be empirically calculated and unidimensionality confirmed.

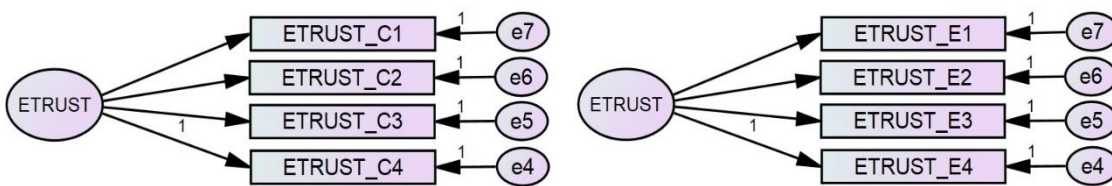
**Table 6.4 Single CFA for EPRI (Validity and Reliability)**

	Clothing		Electrical	
	AVE	CR	AVE	CR
<b>ALL</b>	0.744	0.897	0.816	0.930
<b>China</b>	0.752	0.901	0.758	0.904
<b>India</b>	0.733	0.891	0.764	0.907
<b>UK</b>	0.853	0.946	0.866	0.951
<b>US</b>	0.861	0.949	0.804	0.925

Validity and reliability: AVE (average variance extracted)  $\geq 0.5$  CR (composite reliability)  $\geq 0.7$  with acceptable thresholds

### 6.3.3 ETRUST (Online Ongoing Trust)

The single CFA for ETRUST is shown in Figure 6.3. This construct contains 4 items and is the same in both the clothing and electrical dataset (ETRUSTC1- ETRUST\_C4: clothing dataset, ETRUST\_E1 – ETRUST\_E3: electrical dataset).

**Figure 6.3 Single CFA for ETRUST**

Examining Table 6.5, standardised factor loadings for ETRUST are all above 0.7 in China, UK and US ranging from 0.71 to 0.97 across both the clothing and electrical sectors highlighting very strong factor loadings for ETRUST items. Corresponding  $R^2$  values are all above 0.4 in China, UK and US ranging from 0.51 to 0.94 in both the clothing and electrical sectors, providing strong evidence for ETRUST items accounting for between 51% and 91% of the variance in the ETRUST construct. However, some issues are highlighted in India with standardised factor loadings for item 1 (0.64, 0.61) and item 4 (0.59, 0.67) respectively in both the clothing and electrical sectors below the generally

acceptable threshold of 0.7. Although these loadings are slightly lower, it has been decided to retain them as  $R^2$  values are acceptable particularly for item 1 in the clothing sector (0.4) and item 4 in the electrical sector (0.45). Additionally, there is support for the inclusion of factor loadings with a minimum level of 0.5 (Hair et al., 2018), which all the items exceed.

Model fit is generally very good across all countries and both sectors as can be seen by the model fit indices in table 6.4, with only p-values not so strong. Surprisingly, India which has issues with lower factor loadings demonstrates very good model fit in both the clothing and electrical sector. All  $\chi^2/df$  values are less than 3.00 showing good model fit ranging from 0.035 (India clothing) to 2.337 (UK electrical). Values for CFI range from 0.996 to 1.000 and TLI values from 0.989 to 1.005 both exceeding acceptable levels of 0.95. Similarly, SRMR values are all well below 0.08 ranging from 0.003 to 0.022 and RMSEA values all near or below 0.08 ranging from 0.00 to 0.08 showing good model fit.

Additionally regarding RMSEA 8 out of the 10 scenarios have values below 0.05 indicating very good model fit. As mentioned earlier, p-values do not support good model fit, with values all above 0.05 in the non-significant range of 0.063 to 0.966. Examining reliability and validity (Table 6.5), there is strong evidence of composite reliability and convergent validity with AVE values all above 0.5 (ranging from 0.582 to 0.790) and CR values all above 0.7 (ranging from 0.844 to 0.937). Overall there is some evidence to support the retention of all 4 items for the ETRUST construct, given generally strong factor loadings, good model fit and strong evidence of reliability and validity. Unidimensionality is established in China, UK and US but not in India raising concerns with consistency across countries. Concerns with item 1 and 4 in India with lower factor loadings have been noted and will be further examined in the full measurement model.

However, as model fit and reliability and validity in India all show strong values and factor loadings are still above acceptable thresholds of 0.5, these items have been retained.

**Table 6.5 Single CFA for ETRUST (Factor loadings, R<sup>2</sup> and model fit)**

		ALL N=1010		China n=250		India n=250		UK n=253		US n=257	
Measurement Items	Indicator	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>
Clothing											
1 Even if not monitored, I'd trust this clothing website to do the job right	ETRUST_C1	0.75	0.56	0.81	0.66	0.64	0.40	0.83	0.69	0.73	0.54
2 I trust this clothing website	ETRUST_C2	0.93	0.87	0.90	0.81	0.91	0.82	0.96	0.93	0.96	0.92
3 I believe that this clothing website is trustworthy	ETRUST_C3	0.93	0.86	0.92	0.84	0.89	0.79	0.94	0.89	0.96	0.92
4 I am quite certain what to expect from this clothing website	ETRUST_C4	0.74	0.55	0.80	0.64	0.61	0.37	0.78	0.61	0.81	0.66
Electrical											
1 Even if not monitored, I'd trust this electrical website to do the job right	ETRUST_E1	0.72	0.51	0.81	0.65	0.59	0.34	0.75	0.56	0.71	0.51
2 I trust this electrical website	ETRUST_E2	0.93	0.87	0.93	0.86	0.88	0.77	0.95	0.90	0.97	0.94
3 I believe that this electrical website is trustworthy	ETRUST_E3	0.92	0.85	0.91	0.83	0.87	0.76	0.93	0.87	0.97	0.94
4 I am quite certain what to expect from this electrical website	ETRUST_E4	0.79	0.62	0.77	0.59	0.67	0.45	0.83	0.69	0.88	0.78
Factor loading - Standardised factor loading ( ≥0.7)    R <sup>2</sup> - squared multiple correlation ( ≥0.4) Acceptable thresholds ( )											

#### Model Fit

##### Clothing

	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	AVE	CR
<b>ALL</b>	2.606	2	1.303	0.272	1.000	0.999	0.999	0.004	0.017	0.710	0.906
<b>China</b>	1.394	2	0.697	0.498	1.000	1.002	0.997	0.006	0.000	0.738	0.918
<b>India</b>	0.700	2	0.035	0.966	1.000	1.012	1.000	0.003	0.000	0.600	0.853
<b>UK</b>	5.526	2	2.763	0.063	0.996	0.989	0.989	0.011	0.084	0.776	0.932
<b>US</b>	1.360	2	0.680	0.507	1.000	1.002	0.997	0.008	0.000	0.788	0.936

##### Electrical

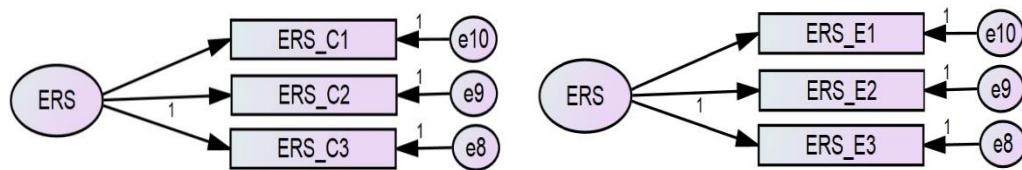
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	AVE	CR
<b>ALL</b>	0.516	2	0.258	0.773	1.000	1.002	1.000	0.002	0.000	0.713	0.908
<b>China</b>	0.678	2	0.339	0.713	1.000	1.005	0.999	0.006	0.000	0.736	0.917
<b>India</b>	2.354	2	1.177	0.308	0.999	0.998	0.995	0.017	0.027	0.582	0.844
<b>UK</b>	4.675	2	2.337	0.097	0.997	0.991	0.990	0.011	0.073	0.755	0.924
<b>US</b>	0.175	2	0.087	0.916	1.000	1.005	1.000	0.022	0.000	0.790	0.937

**Model fit indices with acceptable threshold levels:**  $\chi^2$  (chi square), df (degrees of freedom),  $\chi^2/df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$

### 6.3.4 ERS (Online Relationship Satisfaction)

The single CFA for ERS can be seen in Figure 6.4 and comprises of 3 items in both the clothing and electrical datasets (ERS\_C1- ERS\_C3: clothing dataset, ERS\_E1 – ERS\_E3: electrical dataset).

**Figure 6.4 Single CFA for ERS**



The model is not identifiable, similar to the EPRI construct. Although the minimum number of 3 indicators required for identification are present, the model cannot be identified empirically. Therefore, model fit estimates cannot be examined for the ERS construct. Standardised factor loadings alongside reliability and validity values are inspected for the 3 reflective indicators related to the ERS construct as shown in Table 6.6. Standardised factor loadings are very good across all countries and both sectors ranging from 0.80 to 0.96, far exceeding the 0.7 threshold. This is further reflected with  $R^2$  values ranging from 0.63 to 0.92 showing indicators contribute to a substantial amount of variance in the ERS construct. This provides some evidence for the existences of unidimensionality across all countries and sectors. As model fit indices are not available, the ERS construct is further examined in the full measurement model, where model fit statistics can be analysed to confirm unidimensionality.

**Table 6.6 Single CFA for ERS (Factor loadings and R<sup>2</sup>)**

		ALL N=1010	China n=250		India n=250		UK n=253		US n=257		
Measurement Items	Indicator	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>
Clothing											
1 How satisfied are you with the relationship you have had with your clothing store website	ERS_C1	0.89	0.79	0.87	0.76	0.84	0.71	0.92	0.84	0.94	0.88
2 How pleased are you with the relationship you have had with your clothing store website	ERS_C2	0.91	0.84	0.86	0.73	0.91	0.83	0.96	0.92	0.92	0.85
3 How favourably do you rate your relationship with your clothing store website	ERS_C3	0.87	0.76	0.90	0.82	0.93	0.86	0.80	0.63	0.86	0.74
Electrical											
1 How satisfied are you with the relationship you have had with your electrical store website	ERS_E1	0.92	0.84	0.90	0.81	0.91	0.83	0.91	0.84	0.95	0.90
2 How pleased are you with the relationship you have had with your electrical store website	ERS_E2	0.92	0.85	0.91	0.82	0.90	0.81	0.93	0.86	0.96	0.92
3 How favourably do you rate your relationship with your electrical store website	ERS_E3	0.860	0.730	0.840	0.700	0.900	0.800	0.830	0.690	0.880	0.770
Factor loading - Standardised factor loading ( ≥0.7)    R <sup>2</sup> - squared multiple correlation ( ≥ 0.4) Acceptable thresholds ( )											

Convergent validity and composite reliability are evident with AVE values all well above the 0.5 threshold ranging from 0.769 to 0.866 and CR values above 0.7 ranging from 0.909 to 0.951 across both clothing and electrical datasets as shown in Table 6.7. There is very good support from the standardised factor loadings values and the composite reliability and convergent validity results across all countries and both sectors. These values suggest the three indicators of ERS accurately reflect the ERS construct and so all items are retained with further investigation of model fit indices required in the full measurement model.



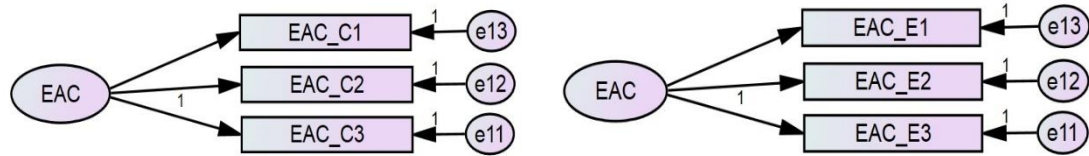
**Table 6.7 Single CFA for ERS (Validity and Reliability)**

	Clothing		Electrical	
	AVE	CR	AVE	CR
<b>ALL</b>	0.792	0.920	0.811	0.928
<b>China</b>	0.769	0.909	0.781	0.915
<b>India</b>	0.800	0.923	0.816	0.930
<b>UK</b>	0.803	0.924	0.794	0.920
<b>US</b>	0.823	0.933	0.866	0.951

Validity and reliability: AVE (average variance extracted)  $\geq 0.5$  CR (composite reliability)  $\geq 0.7$  with acceptable thresholds

### 6.3.5 EAC (Online Affective Commitment)

The single measurement model for EAC can be seen in Figure 6.5 and comprises of 3 items. The same CFA is used in both the clothing and electrical datasets (EAC\_C1-EAC\_C3: clothing dataset, EAC\_E1 – EAC\_E3: electrical dataset).

**Figure 6.5 Single CFA for EAC**

Similarly to the ERS construct, the model for EAC is not estimated and so model fit indices are not able to be examined. Values for standardised factor loadings and squared multiple correlations can be seen in Table 6.8 Standardised factor loadings are all strong across both sectors and all four countries far exceeding the 0.7 threshold, ranging from 0.75 to 0.96. Examining the ALL dataset, standardised factor loadings are particularly strong (0.86 to 0.95), across both sectors and countries with associated strong  $R^2$  values (0.74 to 0.90). Given the variance of the EAC construct accountable by indicators is a minimum of 74%, there is good evidence to defend the suitability of the 3 reflective

indicators and their inclusion in the full measurement model. Unidimensionality can be said to tentatively exist across all countries and sectors but needs confirmation with the full measurement model. This allows model fit statistics to be examined.

**Table 6.8 Single CFA for EAC (Factor loadings and R<sup>2</sup>)**

		ALL N=1010		China n=250		India n=250		UK n=253		US n=257	
Measurement Items	Indicator	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>
Clothing											
1 I feel emotionally attached to my clothing website	EAC_C1	0.86	0.74	0.82	0.67	0.79	0.63	0.88	0.77	0.87	0.76
2 I feel a strong sense of identification with my clothing website	EAC_C2	0.93	0.86	0.86	0.74	0.91	0.84	0.91	0.83	0.95	0.91
3 My clothing website has a great deal of personal meaning for me.	EAC_C3	0.91	0.83	0.83	0.69	0.83	0.70	0.96	0.91	0.95	0.90
Electrical											
1 I feel emotionally attached to my electrical website	EAC_E1	0.89	0.80	0.85	0.73	0.75	0.56	0.93	0.86	0.93	0.86
2 I feel a strong sense of identification with my electrical website	EAC_E2	0.95	0.90	0.89	0.80	0.94	0.89	0.94	0.89	0.96	0.93
3 My electrical website has a great deal of personal meaning for me.	EAC_E3	0.93	0.86	0.79	0.63	0.89	0.80	0.95	0.90	0.96	0.93
Factor loading - Standardised factor loading ( ≥0.7)    R <sup>2</sup> - squared multiple correlation ( ≥0.4) Acceptable thresholds ( )											

Suitability of these indicators is further supported by confirmation of convergent validity ranging from AVE = 0.700 to 0.965 and composite reliability ranging from CR=0.881 to 0.965 with values of AVE and CR above the respective acceptable thresholds of 0.5 and 0.7 (see Table 6.9), across both sectors and countries. Alongside EPRI and ERS, EAC shows no issues regarding its reflective indicators which were retained for the full measurement model.

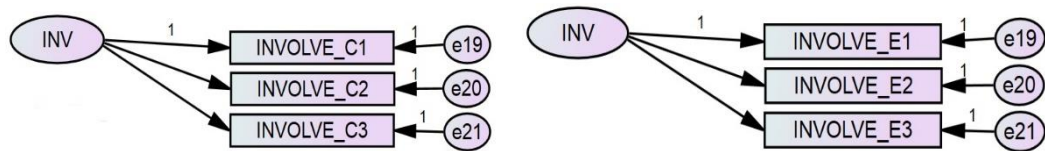
**Table 6.9 Single CFA for EAC (Validity and Reliability)**

	Clothing		Electrical	
	AVE	CR	AVE	CR
<b>ALL</b>	0.811	0.928	0.853	0.946
<b>China</b>	0.700	0.875	0.713	0.881
<b>India</b>	0.714	0.882	0.746	0.897
<b>UK</b>	0.841	0.941	0.884	0.958
<b>US</b>	0.854	0.946	0.903	0.965

Validity and reliability: AVE (average variance extracted)  $\geq 0.5$  CR (composite reliability)  $\geq 0.7$  with acceptable thresholds

### 6.3.6 INV (Product Category Involvement)

The involvement construct (INV) is used as a moderator for this study and the single CFA can be seen in Figure 6.6. The involvement construct comprises of 3 items in both the clothing and electrical datasets (INV\_C1- INV\_C3: clothing dataset, INV\_E1 – INV\_E3: electrical dataset) and examines product category involvement.

**Figure 6.6 Single CFA for Involvement**

Similarly to EPRI, ERS and EAC the model for involvement was not able to be estimated with its 3 reflective indicators and so model fit indices were not available for examination. Unidimensionality was therefore examined through standardised factor loadings and squared multiple correlations. Standardised factor loadings were generally good across both sectors and countries with the majority greater than the minimum threshold of 0.7, ranging from 0.79 to 0.95 with corresponding  $R^2$  values of 0.63 to 0.90 as shown in Table 6.10. Two standardised factor loadings were below the 0.7 threshold in the China dataset

for item 3 in both the clothing and electrical dataset, 0.59 and 0.56 respectively. However, as they were slightly below the usual threshold values, were still above the 0.5 threshold as suggested by (Hair et al., 2018) and so retained in the model. Further examination of item 3 in India, UK and US, showed good standardised factor loadings all well above the accepted 0.7 threshold: ALL (0.84), India (0.79), UK (0.88) and US (0.95). Additionally very strong  $R^2$  values existed all well above the acceptable threshold of 0.4: ALL (0.70), India (0.63), UK (0.78) and US (0.90). This suggests strong unidimensionality is shown for item 3 in India, UK and US but not in China. Unidimensionality is tentatively established in the ALL, India, UK and US datasets across both the clothing and electrical sector. However, concerns are raised regarding unidimensionality in the China dataset in both the clothing and electrical datasets. This item will therefore need further inspection in the full measurement model alongside model fit indices.

**Table 6.10 Single CFA for INV (Factor loadings and  $R^2$ )**

		ALL N=1010		China n=250		India n=250		UK n=253		US n=257	
Measurement Items	Indicator	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>
Clothing											
1 Generally, I am someone who finds it important what clothes he or she buys.	INVOLVE_C1	0.89	0.79	0.81	0.66	0.84	0.71	0.93	0.87	0.89	0.79
2 Generally, I am someone who is interested in the kind of clothing he or she buys.	INVOLVE_C2	0.89	0.80	0.82	0.67	0.88	0.77	0.94	0.88	0.89	0.79
3 Generally, I am someone for whom it means a lot what clothes he or she buys	INVOLVE_C3	0.84	0.70	0.59	0.35	0.79	0.63	0.88	0.78	0.95	0.90
Electrical											
1 Generally, I am someone who finds it important what electrical products he or she buys.	INVOLVE_E1	0.88	0.78	0.76	0.57	0.86	0.74	0.89	0.79	0.93	0.86
2 Generally, I am someone who is interested in the kind of electrical products he or she buys.	INVOLVE_E2	0.91	0.83	0.88	0.78	0.86	0.74	0.94	0.89	0.94	0.89
3 Generally, I am someone for whom it means a lot what electrical products he or she buys	INVOLVE_E3	0.85	0.72	0.56	0.31	0.89	0.79	0.87	0.76	0.89	0.80
Factor loading - Standardised factor loading ( ≥0.7)		R <sup>2</sup> - squared multiple correlation ( ≥0.4) Acceptable thresholds ( )									

In addition composite reliability and convergent validity are specifically checked in China (see Table 6.11) both showing good values (AVE = 0.559, CR= 0.788) above the threshold levels of 0.5 for AVE and 0.7 for CR, providing some reassurance for the inclusion of this item. Convergent validity and composite reliability are further evident across both sectors and countries with AVE values ranging from 0.559 to 0.847 and CR values from 0.788 to 0.943 adding support for the appropriateness of the 3 reflective indicators for involvement. Although no items were removed from the involvement construct, item 3 in China was noted as displaying slightly lower than usual standardised factor loadings and will be examined further in the full measurement model.

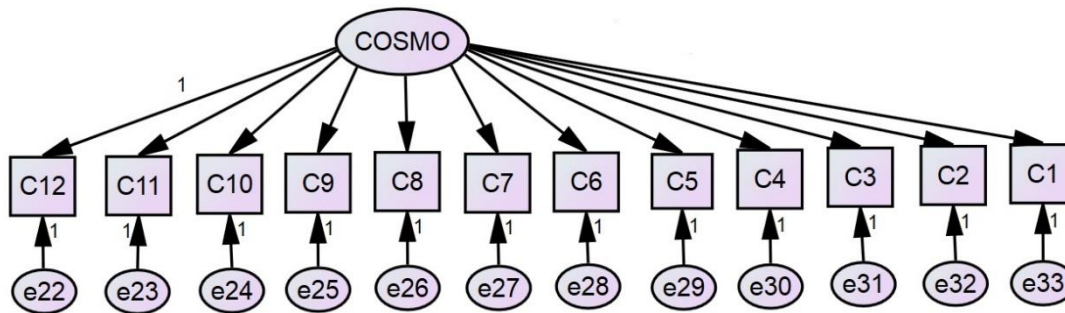
**Table 6.11 Single CFA for INV (Validity and Reliability)**

	Clothing		Electrical	
	AVE	CR	AVE	CR
<b>ALL</b>	0.753	0.906	0.775	0.912
<b>China</b>	0.559	0.788	0.559	0.788
<b>India</b>	0.701	0.876	0.757	0.903
<b>UK</b>	0.841	0.941	0.811	0.928
<b>US</b>	0.829	0.936	0.847	0.943

Validity and reliability: AVE (average variance extracted)  $\geq$  0.5  
CR (composite reliability)  $\geq$  0.7 with acceptable thresholds

### 6.3.7 COSMO (Consumer Cosmopolitanism)

The single measurement model for COSMO is shown in Figure 6.7 and comprises of 12 items (C1-C12). Shortened codes (C1-C12) are used for clarity as shown in Table 6.12. Unlike the previous constructs, the COSMO construct is employed mutually across both the clothing and electrical dataset.

**Figure 6.7 Single CFA for Cosmopolitanism**

Cosmopolitanism acts as a moderator and unlike the product category involvement construct is not confined to the clothing and electrical dataset appearing as a construct of 12 items. Unidimensionality is examined through standardised factor loadings,  $R^2$  values and model fit indices and values are shown in Table 6.12. Standardised factor loadings are generally good across all country datasets with some inconsistencies evident across country datasets. Items related to C5, C6, C7, C11 and C12 show slightly lower standardised factor loadings in 1 to 2 country datasets. Items related to C1, C8, C9 and C10 show lower standardised factor loadings across 3 or more country datasets highlighting greater consistency in weaker results. Values excluding these items range from 0.70 to 0.90 as shown in Table 6.12 with corresponding  $R^2$  values of 0.48 to 0.80 providing good support for the majority of items in the cosmopolitanism construct. Items of some concern (C5, C6, C7, C11 and C12) and items of more concern (C1, C8, C9 and C10 are discussed below).

Items of some concern have standardised factor loadings slightly below the 0.7 threshold in 1 to 2 country datasets:

*Item 5 (C5) = UK (0.69)*

*Item 6 (C6) = China (0.68)*

*Item 7 (C7) = UK (0.66)*

*Item 11(C11) = India (0.57), UK (0.68)*

*Item 12 (C12) = India (0.59)*

However, as these are slightly below the 0.7 threshold and still above the acceptable levels of 0.5 (hair et al 2018), coupled with either their consistency in values (items 11) or uniqueness compared to other country datasets (items 5, 6, 7 and 12) are retained in the model and noted for additional investigation in the full measurement model.

Items of more concern display weaker standardised factor loadings across 3 or more country datasets and are highlighted below.

*Item 1 (C1) = China (0.65), India (0.66), US (0.68)*

*Item 8 (C8) = All (0.41), China (0.16), India (0.35), UK (0.40), US (0.48)*

*Item 9 (C9) = All (0.69), China (0.62), India (0.59), UK (0.61)*

*Item 10 (C10) = All (0.69), China (0.66), India (0.57), UK (0.68), US (0.67)*

Items 1, 9 and 10 similarly are slightly below the 0.7 threshold across some country datasets but still above acceptable levels of 0.5 across countries and sectors. These items are additionally retained in the model but have been noted for further examination due to their lower standardised factor scores across most if not all country datasets. Standardised factor scores for item 8 (C8) are particularly weak across all four countries and well below the minimum acceptable level of 0.5 as seen in Table 6.12. Corresponding  $R^2$  values are

well below acceptable threshold levels of 0.4 highlighting poor variance attributable through items and again evident across all 4 countries.

*Item 8 (C8) = ALL (0.17), China (0.02), India (0.12), UK (0.16), US (0.23) (R<sup>2</sup> values)*

Coupled with poor model fit as discussed below and inconsistent convergent validity, item 8 has been removed from the cosmopolitanism construct.

In addition issues with convergent validity are highlighted in China (AVE = 0.480) and India (AVE=0.440) with values slightly lower than acceptable levels of 0.5 (see Table 6.12). Convergent validity is evident in the UK (AVE=0.530) and US (AVE= 0.590), which contributes to the overall convergent validity in the ALL dataset (AVE= 0.570). While results are mixed regarding convergent validity, composite reliability is more consistent with values well above 0.7 ranging from (0.903 to 0.944) across all four countries yielding some support for cosmopolitanism items.

Model fit is generally poor across all four countries with a number of model indices failing to reach minimum threshold levels as shown in Table 6.12. All  $\chi^2/df$  values are well above minimum acceptable levels of 3.00 ranging from 5.306 to 38.052. Additionally CFI and TLI values are well below acceptable good fit thresholds of 0.95 ranging from 0.708 to 0.854 and 0.643 to 0.822 respectively. Similarly GFI values do not meet the minimum 0.95 standard, ranging from 0.628 to 0.821. RMSEA values are all very poor ranging from 0.131 to 0.232 and far beyond the 0.05 maximum threshold value. Interestingly, SRMR values are generally good with most equal to or less than the 0.08 threshold, ranging from 0.065 to 0.084, with the exception of the UK at a slightly higher value of 0.097. Likewise p-values are also significant and below the 0.05 level showing some support for model fit. However, as the majority of fit indices are poor the model fit is



considered weak. A number of 11 items are retained in the model with the removal of item 8 which demonstrated weak standardised factor loadings and  $R^2$  values across all four countries. Model fit is considered weak and although composite reliability is strong, convergent validity is more unsatisfactory. The cosmopolitanism construct is considered for further examination in the full measurement model with items 1, 9 and 10 considered for particular inspection given their slightly weaker factor loading values across 3 or more country datasets.

**Table 6.12 Single CFA for COSMO (Factor loadings,  $R^2$  and model fit)**

<i>Model Fit</i>											
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	AVE	CR
<b>ALL</b>	2054.808	54	38.052	0.000	0.783	0.735	0.716	0.075	0.192	0.570	0.940
<b>China</b>	286.501	54	5.306	0.000	0.854	0.822	0.821	0.065	0.131	0.480	0.912
<b>India</b>	424.953	54	7.870	0.000	0.769	0.718	0.747	0.084	0.166	0.440	0.903
<b>UK</b>	763.384	54	14.137	0.000	0.708	0.643	0.655	0.097	0.228	0.530	0.928
<b>US</b>	795.420	54	14.730	0.000	0.745	0.689	0.628	0.079	0.232	0.590	0.944
<b>Model fit indices with acceptable threshold levels:</b> $\chi^2$ (chi square), df (degrees of freedom), $\chi^2/df$ (normed chi-square) $\leq 5$ , (p-value) $\leq 0.05$ , CFI (comparative fit index) $\geq 0.95$ , TLI (Tucker-Lewis index) $\geq 0.95$ , GFI (goodness of fit index) $\geq 0.90$ , SRMR (standardised root mean square residual) $\leq 0.08$ , RMSEA (root mean square error of approximation) $\leq 0.08$											
<b>Validity and reliability:</b> AVE (average variance extracted) $\geq 0.5$ CR (composite reliability) $\geq 0.7$											

A summary of concerns emerging from the single CFA for ELOYALTY, ETRUST, ERS, EAC, EPRI, INV and COSMO is given below (Table 6.13)

Table 6.13 Single CFA SUMMARY

		ALL N=1010		China n=250		India n=250		UK n=253		US n=257	
Measurement Items	Indicator	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>	Factor Loading	R <sup>2</sup>
1 When travelling I make a conscious effort to get in touch with the local culture and traditions	C1	0.720	0.520	0.650	0.430	0.660	0.440	0.760	0.580	0.680	0.460
2 I like having the opportunity to meet people from many different countries	C2	0.840	0.700	0.790	0.630	0.730	0.540	0.860	0.750	0.880	0.780
3 I like to have contact with people from different cultures	C3	0.860	0.730	0.860	0.650	0.750	0.560	0.900	0.800	0.890	0.800
4 I have got a real interest in other countries	C4	0.830	0.690	0.770	0.590	0.720	0.520	0.840	0.710	0.870	0.750
5 Having access to products coming from many different countries is valuable to me	C5	0.790	0.620	0.750	0.560	0.820	0.670	0.690	0.480	0.800	0.630
6 The availability of foreign products in the domestic market provides valuable diversity	C6	0.760	0.580	0.680	0.460	0.750	0.560	0.700	0.490	0.810	0.660
7 I enjoy being offered a wide range of products coming from various countries	C7	0.770	0.590	0.700	0.500	0.760	0.580	0.660	0.430	0.830	0.700
8 Always buying the same local products becomes boring over time	C8	0.410	0.170	0.160	0.020	0.350	0.120	0.400	0.160	0.480	0.230
9 I like watching movies from different cultures	C9	0.690	0.480	0.620	0.390	0.590	0.350	0.610	0.380	0.710	0.510
10 I like to listen to music of other cultures	C10	0.690	0.480	0.660	0.440	0.570	0.330	0.680	0.460	0.670	0.440
11 I like trying original dishes from other countries	C11	0.870	0.450	0.700	0.500	0.570	0.320	0.680	0.460	0.700	0.480
12 I like trying out things that are consumed elsewhere in the world	C12	0.740	0.550	0.720	0.520	0.590	0.350	0.780	0.500	0.800	0.550
Factor loading - Standardised factor loading ( ≥0.7)    R <sup>2</sup> - squared multiple correlation ( ≥0.4)											

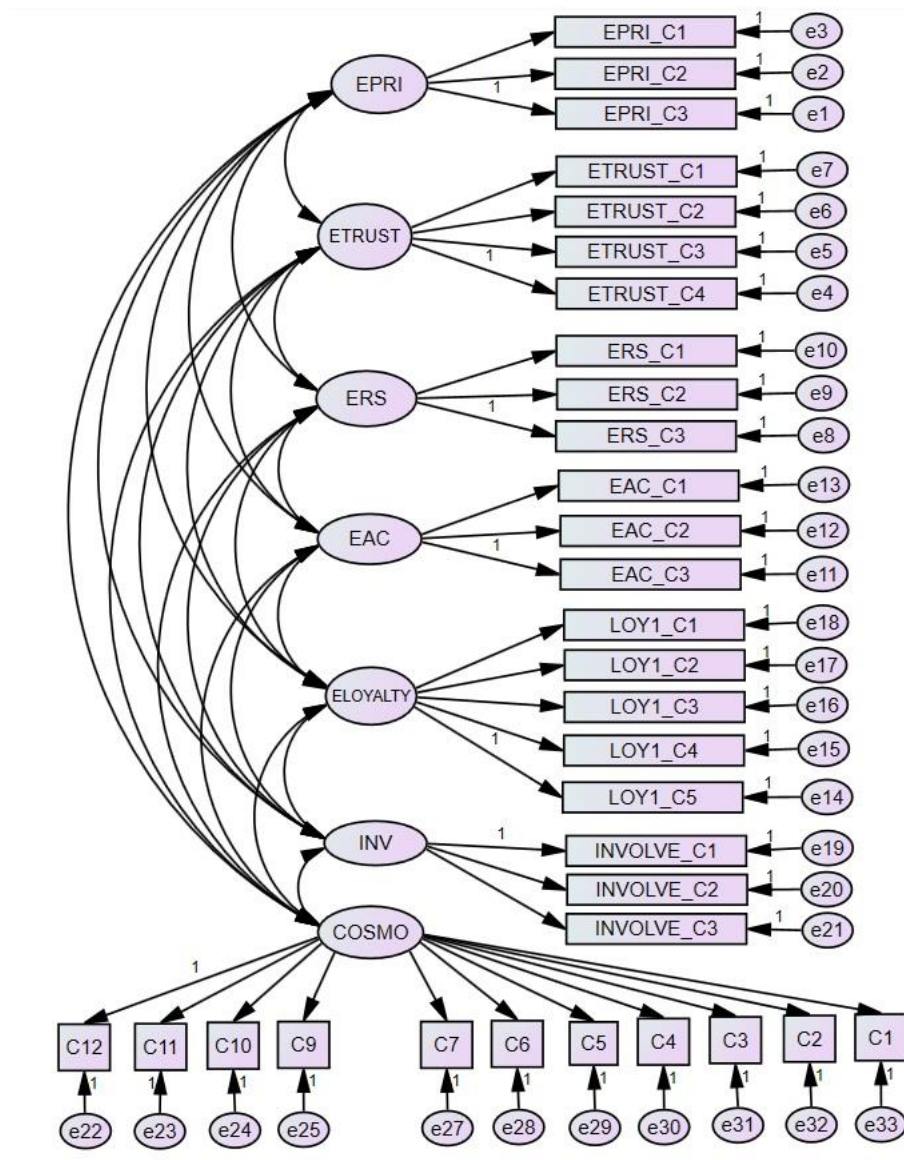
Construct	Number of retained items	Items removed	Standardised Factor loadings	Model Fit	AVE	CR	Noted Items
ELOYALTY	5	0	Satisfactory	Satisfactory - Poor	Good	Good	Item 5, China, Clothing
EPRI	3	0	Good	Not estimated	Good	Good	None
ETRUST	4	0	Satisfactory	Satisfactory	Good	Good	Item 1 and 4, India, Clothing Item 1 and 4, India, Electrical
ERS	3	0	Good	Not estimated	Good	Good	None
EAC	3	0	Good	Not estimated	Good	Good	None
INV	3	0	Satisfactory	Not estimated	Good	Good	Item 3, China, Clothing Item 3, China, Electrical
COSMO	11	Item 8	Satisfactory	Poor	Satisfactory	Good	Item 1, China, India, US Item 9, China, India, UK Item 10, All countries
Standardised Factor loadings: Good (all above 0.7), Satisfactory (majority above 0.7), Poor (Majority below 0.7)							
Model Fit : Good (Most model indices above thresholds), Satisfactory (Some model indices above thresholds) , Poor (Most model indices below thresholds)							
Average Variance Extracted (AVE) : Good (all above 0.5), Satisfactory (majority above 0.5), Poor (Majority below 0.5)							
Composite Reliability (CR): Good (all above 0.7), Satisfactory (majority above 0.7), Poor (Majority below 0.7)							
Noted Items : Items to examine in full measurement model							

## 6.4 Full Measurement Model

### 6.4.1 Full Measurement Model 1 - Clothing

The next stage of analysis involves estimation of the full measurement model to additionally highlight issues not detectable with single construct CFAs.

**Figure 6.8 Full measurement model: Clothing ALL dataset**



*EPRI* - online perceived relationship investment, *ETRUST* - online ongoing trust, *ERS* - online relationship satisfaction, *EAC* - online affective commitment, *ELOYALTY* - online loyalty, *INV* - product category involvement, *COSMO* - consumer cosmopolitanism

The full measurement model unlike the single CFA examines relationships between constructs and correlated errors providing a more efficient method of measurement model analysis. The full measurement model for the clothing ALL dataset was estimated after the removal of item 8 from the cosmopolitanism construct identified from the single CFA (Figure 6.8). Initial results suggest a poor fitting model across all countries with a number of model fit indices well below commonly acceptable thresholds as seen in Table 6.14. The normed chi-square value ( $\chi^2/df$ ) is particularly high in the ALL dataset (6.860) and well above acceptable levels of 3.00. Although China (2.056) and India (2.243) demonstrate acceptable normed chi-square values, the UK (3.302) and US (3.120) are slightly above these levels. The CFI and TLI values are all below the 0.95 threshold ranging from 0.867 to 0.918 and 0.851 to 0.909 respectively. Similarly GFI values are all below recommended levels of 0.90. Some RMSEA values are within acceptable limits falling below the 0.08 threshold, with the UK (0.096) and US (0.091) above this value. In contrast, the SRMR values are all good and less than the 0.08 threshold in all countries. Standardised factor loadings are mixed ranging from 0.57 to 0.97 across all datasets and squared multiple correlations ( $R^2$ ) ranging from 0.41 to 0.91. Unidimensionality could not be established consistently across all countries and datasets primarily due to weak model and inconsistent model fit.

Issues concerning convergent validity and composite reliability for individual constructs are further evident (see Table 6.16a for summary). Convergent validity could not be established in the clothing dataset in China (COSMO) AVE = 0.494 and India (COSMO) AVE = 0.447, with AVE values below acceptable thresholds of 0.5. The clothing dataset demonstrates issues with discriminant validity in China with INV and COSMO constructs and in India with the ETRUST and COSMO construct.

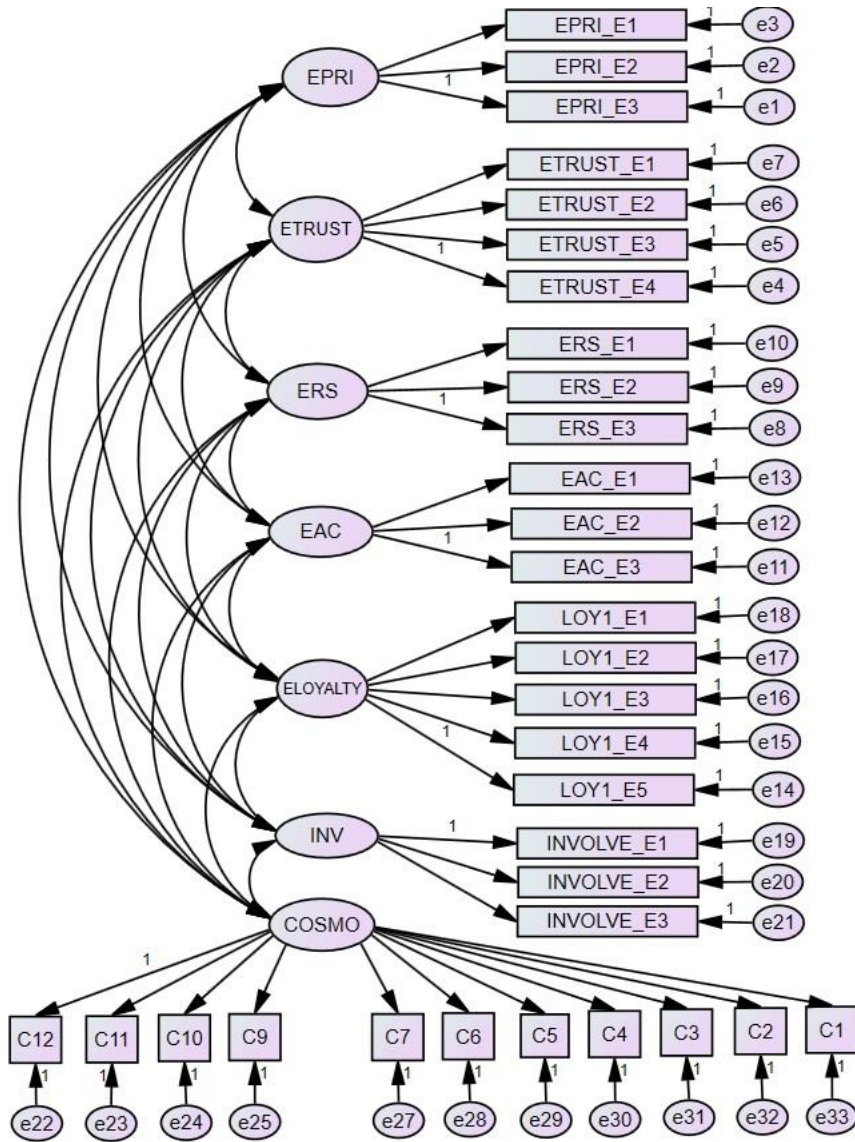
**Table 6.14 Full measurement model: Clothing**

<b>Clothing</b>									
	$\chi^2$	$df$	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
<b>ALL</b>	3038.897	443	6.860	0.000	0.906	0.894	0.826	0.044	0.076
<b>China</b>	910.852	443	2.056	0.000	0.918	0.909	0.816	0.048	0.065
<b>India</b>	993.563	443	2.243	0.000	0.907	0.895	0.798	0.050	0.071
<b>UK</b>	1462.930	443	3.302	0.000	0.867	0.851	0.732	0.064	0.096
<b>US</b>	1385.543	443	3.120	0.000	0.886	0.873	0.741	0.055	0.091
<b>Model fit indices with acceptable threshold levels:</b> $\chi^2$ (chi square), $df$ (degrees of freedom), $\chi^2/df$ (normed chi-square) $\leq 5$ , (p-value) $\leq 0.05$ , CFI (comparative fit index) $\geq 0.95$ , TLI (Tucker-Lewis index) $\geq 0.95$ , GFI (goodness of fit index) $\geq 0.90$ , SRMR (standardised root mean square residual) $\leq 0.08$ , RMSEA (root mean square error of approximation) $\leq 0.08$									
<b>Validity and reliability:</b> AVE (average variance extracted) $\geq 0.5$ CR (composite reliability) $\geq 0.7$									

Model estimation is established in the full measurement model addressing concerns where the model could not be estimated for the single CFA for the EPRI, ERS, EAC and INV construct. However, although model fit is generally weak overall no specific issues are highlighted regarding items in the EPRI, ERS and EAC construct. Some issues regarding INV are evident in China with low discriminant validity.

#### 6.4.2 Full Measurement Model 1 - Electrical

Figure 6.9 displays the electrical full measurement model with item 8 (C8) removed from the COSMO construct and all other items retained. Similar to the clothing full measurement model results for the electrical dataset display poor model fit after estimation (see Table 6.15). The moderators INV and COSMO are included in the full measurement model to additionally examine the validation of observed variables to unobserved (latent) variables and relationships with other variables in the model.

**Figure 6.9 Full measurement model: Electrical ALL dataset**

*EPRI* - online perceived relationship investment, *ETRUST* - online ongoing trust, *ERS* - online relationship satisfaction, *EAC* - online affective commitment, *ELOYALTY* - online loyalty, *INV* - product category involvement, *COSMO* - consumer cosmopolitanism

Examining Table 6.15, the normed chi-square value is well above the acceptable level of 3.00 for the ALL dataset (6.982) alongside values in the UK (3.166) and US (3.319) with values in China (2.265) and India (2.403) falling within acceptable levels. The CFI and TLI values are all below the recommended levels of 0.95 across all countries as well as the GFI values all falling below the 0.95 threshold. The SRMR and RMSEA values follow a similar pattern to the clothing dataset, with all SRMR values falling within an acceptable range below 0.08 and RMSEA values are more inconsistent. The RMSEA values are all within acceptable limits falling below the 0.08 threshold, except for values in the UK (0.093) and the US (0.095), suggesting poor model fit in these countries.

**Table 6.15 Full measurement model: Electrical**

<b>Electrical</b>									
	$\chi^2$	$df$	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
<b>ALL</b>	3093.070	443	6.982	0.000	0.910	0.899	0.823	0.043	0.077
<b>China</b>	1003.460	443	2.265	0.000	0.909	0.898	0.797	0.052	0.071
<b>India</b>	1064.438	443	2.403	0.000	0.901	0.889	0.787	0.049	0.075
<b>UK</b>	1402.317	443	3.166	0.000	0.878	0.864	0.746	0.056	0.093
<b>US</b>	1470.203	443	3.319	0.000	0.888	0.874	0.731	0.051	0.095

**Model fit indices with acceptable threshold levels:**  $\chi^2$  (chi square),  $df$  (degrees of freedom),  $\chi^2/df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$

**Validity and reliability:** AVE (average variance extracted)  $\geq 0.5$  CR (composite reliability)  $\geq 0.7$

Standardised factor loadings are inconsistent across countries with values ranging from 0.57 to 0.95. Unidimensionality could not be established uniformly across countries and sectors in the electrical dataset. Furthermore, convergent validity is not established across all countries with AVE values lower than acceptable thresholds of 0.5 in China (COSMO) AVE = 0.492 and India (COSMO) AVE = 0.447 (see Table 6.16a). Additional issues with discriminant validity are highlighted where values or maximum shared variance are less than the average variance extracted ( $MSV < AVE$ ). Discriminant validity is not

established in India with ETRUST, COSMO and ELOYALTY constructs. Similarly in China discriminant validity issues are evident with COSMO, INV and ELOYALTY constructs. The initial full measurement model suggests poor model fit generally in both the clothing and electrical datasets and across countries. Unidimensionality is inconsistent and could not uniformly be established. Additional concerns with convergent and discriminant validity are highlighted, although composite reliability is fairly strong across countries and sectors.

### **6.4.3 Full Respecification Measurement Model - Clothing**

To address concerns of model misspecification, highest ranking values of modification indices were examined in all datasets ranging from 103.035 to 206.169 with a modification threshold of 20 (see Table 6.16a). Items were removed incrementally where MI values were particularly large and appearing across multiple datasets. While modification indices provided an indication of reductions in model chi-square values promoting better fit through the removal of indicators, these were selectively removed based on theoretical reasoning. Items identified with high modification indices were cross checked with items that had been noted for further investigation from the single CFA analysis and initial full measurement model analysis. Items removed included C6, C7, C9, C10 and C12 from the COSMO construct. These reflected issues of convergent validity with the COSMO construct in China and India in both the clothing and electrical datasets alongside fairly low standardised factor loadings and  $R^2$  values across the datasets. While removing these items improved model fit issues discriminant validity in China and India remained. Constructs highlighted with potential concerns include INV in China, ETRUST in India and ELOYALTY in both India and China. These were individually examined and a further six items removed from the model in both the



clothing and electrical dataset to ensure consistency and meaningful interpretation of results as shown in Table 16. The COSMO items (C6, C7 C9, C10, C12) were removed due to convergent validity issues in China and India in both the clothing and electrical datasets, suggesting poor indicator representation of the latent factor (COSMO). Additionally discriminant validity issues appeared in the China and India datasets indicating the correlation of indicator items was stronger with other latent factors and not with the associated latent factor. This was evident from the indicators associated with the INV, ETRUST and ELOYALTY constructs. Reasons for this could be due to model complexity and the inclusion of a number of latent factors and indicators, interpretation or cultural issues. Items removed from the initial measurement model are shown in Table 6.16. Although the C-COSMO construct is originally designed as a three-dimensional, second- order construct, it has been included in the analysis as a first-order construct given issues highlighted in the CFA. While dimensions of open-mindedness retain all 4 items (C1, C2, C3, C4), dimensions of diversity appreciation retain only 1 item (C6) as does consumption transcending borders (C11). Given the lack of variation identified across second-order factors in accounting for first-order factors, a second-order CFA was not conducted. This approach is adopted in line with Lee and Cadogan (2013) who argue (i) higher-order reflective constructs are invalid and superfluous to construct conceptualisation and (ii) First-order measurement models should be used when higher order measurement models are not unidimensional. This is evident with the issues regarding the inclusion of diversity appreciation and consumption transcending borders as dimensions of consumer cosmopolitanism and the lack of support for their individual indicators.

Table 6.16 Summary of removed indicators

Construct	Variable Code	Item	Reason for removal
<b>COSMO</b>			
	C6	The availability of foreign products in the domestic market provides valuable diversity	Low standardised factor scores, CV in China/India (AVE<0.5), high MI, DV in China and India
	C7	I enjoy being offered a wide range of products coming from various countries	
	C9	I like watching movies from different cultures	
	C10	I like to listen to music of other cultures	
	C12	I like trying out things that are consumed elsewhere in the world	
<b>INV</b>	INVOLVE_C3/E3	Generally, I am someone for whom it means a lot what clothes/electrical products he or she buys	Low standardised factor scores, DV in China
<b>ETRUST</b>	ETRUST_C1/E1	Even if not monitored, I'd trust this clothing/electrical website to do	Low standardised factor scores, DV in India
	ETRUST_C4/E4	I am quite certain what to expect from this clothing/electrical	
<b>ELOYALTY</b>	LOY1_C4/E4	Consider it my first choice to buy clothes/electrical products?	Low standardised factor scores, DV in China and India
	LOY1_C4/E4	Purchase more clothes/electrical products from it in the future ?	

COSMO (consumer cosmopolitanism), INV (product category involvement), ETRUST (online ongoing trust), ELOYALTY (online loyalty) MI (modification index)  
 Low standardised factor scores  $\leq 0.7$ , Convergent validity, (average variance extracted) AVE  $\leq 0.5$ , Discriminant Validity issue (DV) where MSV > AVE (MSV, maximum shared variance)  
 Item codes include both clothing and electrical items (Cn /En ). Full COSMO codes have been shortened (C6, C7, C9, C10, C12)

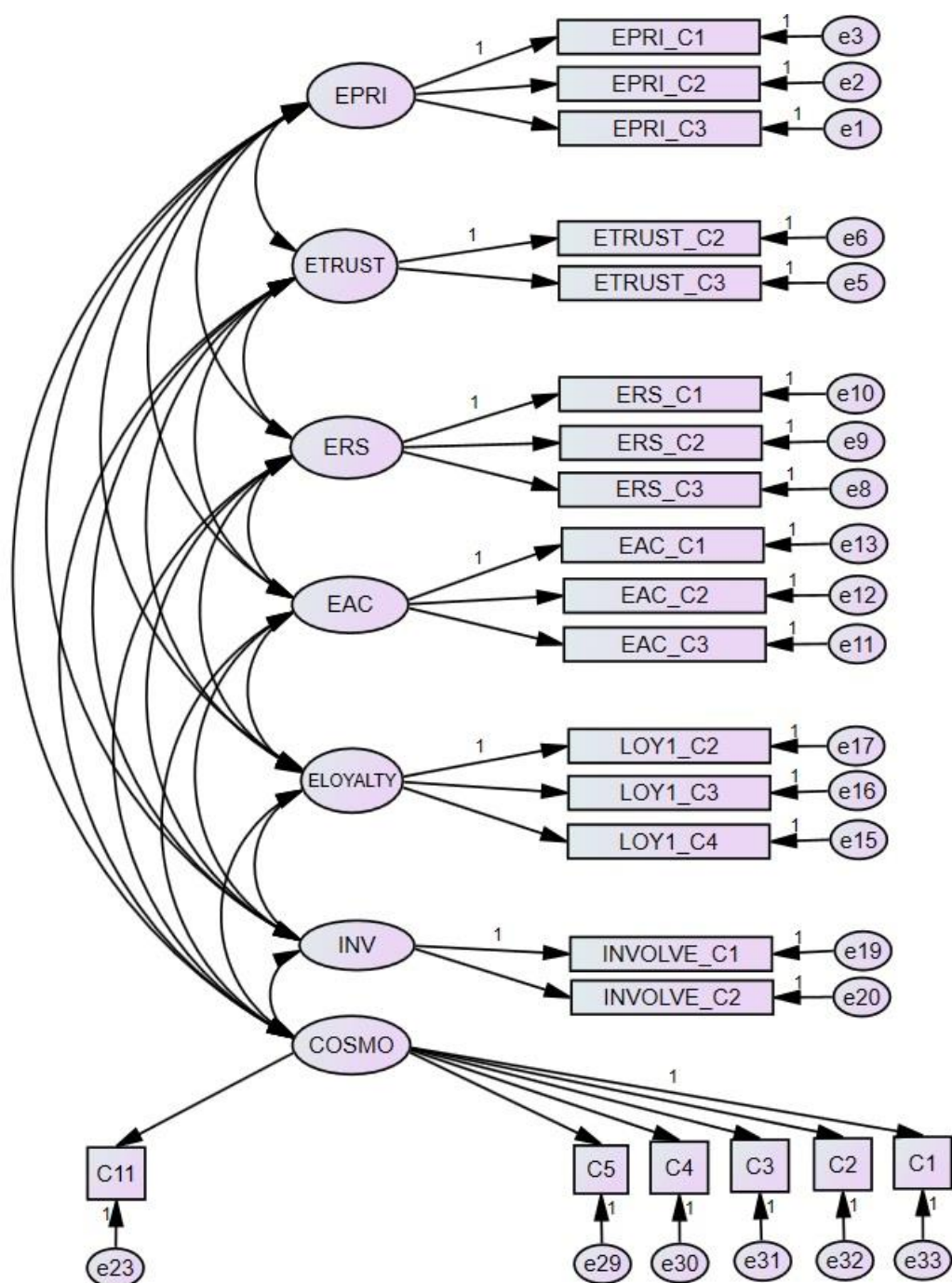
Table 6.16a Summary of issues with validity and modification indices

		China		India		
Construct		AVE	MSV	AVE	MSV	
<b>COSMO</b>	<b>Clothing</b>	0.494	0.566	0.447	0.501	DV and CV in China and India
	<b>Electrical</b>	0.492	0.616	0.447	0.416	DV and CV in China and CV in India
<b>INV</b>	<b>Clothing</b>	0.563	0.570	-	-	DV in China
	<b>Electrical</b>	0.552	0.616	-	-	DV in China
<b>ETRUST</b>	<b>Clothing</b>	-	-	0.597	0.663	DV in India
	<b>Electrical</b>	-	-	0.580	0.686	DV in India
<b>ELOYALTY</b>	<b>Clothing</b>	-	-	-	-	
	<b>Electrical</b>	0.644	0.724	0.722	0.733	DV in China and India
<b>COSMO</b>	<b>ALL</b>	<b>Modification Indices</b>				
		<b>Clothing</b>		<b>Electrical</b>		
	<b>C6</b>	108.120 (0.224)		110.214 (0.227)		<i>Removed</i>
	<b>C7</b>	103.035 (0.216)		105.510 (0.214)		<i>Removed</i>
	<b>C9</b>	154.987 (0.280)		156.117 (0.281)		<i>Removed</i>
	<b>C10</b>	153.846 (0.299)		163.374 (0.310)		<i>Removed</i>
	<b>C12</b>	165.215 (0.312)		204.593 (0.307)		<i>Removed</i>

COSMO (consumer cosmopolitanism), INV (product category involvement), ETRUST (online ongoing trust), ELOYALTY (online loyalty) MI (modification indices) Par change values shown in parentheses  
 Low standardised factor scores  $\leq 0.7$ , Convergent validity, (average variance extracted) AVE  $\leq 0.5$ , Discriminant Validity issue (DV) where MSV > AVE (MSV, maximum shared variance)

The final respecified model for the clothing dataset can be seen in Figure 6.10 with the removal of the items highlighted in Table 6.16. Some latent factors have two remaining items (ETRUST and INV) which can be considered problematic given the acceptable minimum of three items generally required in SEM (Bollen, 1989; Kenny, 2015). However, this should not be too much of an issue given model complexity and fairly large number of retained parameter estimates. The final respecified model (see figure 6.10) provides good model fit after estimation with the majority of values falling within acceptable ranges as shown in Table 6.17. The normed chi-square values were all below the recommended level of 3.00 ranging from 1.58 to 2.79. The CFI and TLI values were all above the minimum threshold of 0.95 and both fell within ranges 0.96 to 0.98. Both SRMR and RMSEA values further suggested good model fit with SRMR values all well below the 0.08 (ranging from 0.04 to 0.05) threshold and RMSEA values ranging from 0.04 to 0.06 and within acceptable levels of around 0.6. The GFI values were nearly all near the 0.90 level or above ranging from 0.89 to 0.95.

Figure 6.10 Full respecified measurement model –Clothing



*EPRI* - online perceived relationship investment, *ETRUST* - online ongoing trust, *ERS* - online relationship satisfaction, *EAC* - online affective commitment, *ELOYALTY* - online loyalty, *INV* – product category involvement, *COSMO* – consumer cosmopolitanism

**Table 6.17 Model Fit (Respecified measurement model – Clothing)**

	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
<b>ALL</b>	524.690	188	2.791	0.000	0.982	0.977	0.953	0.039	0.042
<b>China</b>	327.009	188	1.739	0.000	0.964	0.956	0.897	0.043	0.054
<b>India</b>	308.678	188	1.652	0.000	0.970	0.963	0.899	0.046	0.051
<b>UK</b>	362.187	188	1.927	0.000	0.966	0.958	0.887	0.051	0.061
<b>US</b>	296.889	188	1.579	0.000	0.980	0.975	0.905	0.054	0.048

**Model fit indices with acceptable threshold levels:**  $\chi^2$  (chi square), df (degrees of freedom),  $\chi^2/df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$

Additionally measurement error residuals were examined as a further indication of model fit and all appeared well below the maximum acceptable level of 2.38 ranging from 0.00 to 1.63 in the clothing dataset across all countries. Composite reliability and convergent validity was evident across all countries with CR values ranging from 0.801 to 0.958 above the 0.7 threshold and AVE values ranging from 0.569 to 0.919 and above the 0.5 threshold (see Table 6.18). Discriminant validity was established with all values of MSV below the AVE value in the clothing dataset across all countries. This was additionally supported with the Fornell and Larker (1981) test where the square root of AVE is greater than any inter-construct correlations. Furthermore standardised factor loadings across all countries were good ranging from 0.54 to 1.00 with the majority above the 0.7 threshold and  $R^2$  values from 0.54 to .91 as shown in Table 6.20. Combined with strong model fit, there is support for unidimensionality across all countries and sectors.

**Table 6.18 Clothing Dataset - Respecified measurement model (Validity, Reliability & Correlation values)****ALL (Clothing)**

	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	1.444	5.333	0.884	0.792	0.321	<b>0.890</b>						
EPRI	1.360	5.374	0.926	0.808	0.417	0.442	<b>0.899</b>					
ETRUST	1.039	5.938	0.928	0.866	0.588	0.421	0.513	<b>0.931</b>				
ERS	0.973	5.911	0.921	0.795	0.588	0.424	0.573	0.767	<b>0.891</b>			
EAC	1.683	4.314	0.928	0.811	0.417	0.567	0.646	0.432	0.506	<b>0.901</b>		
ELOYALTY	1.274	5.503	0.885	0.721	0.399	0.455	0.632	0.565	0.620	0.624	<b>0.849</b>	
COSMO	1.218	5.453	0.908	0.628	0.194	0.441	0.373	0.341	0.339	0.426	0.383	<b>0.793</b>

**China**

	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	0.956	5.852	0.801	0.668	0.563	<b>0.817</b>						
EPRI	1.099	5.512	0.900	0.750	0.504	0.584	<b>0.866</b>					
ETRUST	1.037	5.688	0.907	0.829	0.676	0.685	0.692	<b>0.911</b>				
ERS	0.919	5.779	0.910	0.771	0.676	0.750	0.692	0.822	<b>0.878</b>			
EAC	1.256	4.861	0.875	0.700	0.518	0.559	0.708	0.673	0.632	<b>0.837</b>		
ELOYALTY	1.154	5.361	0.841	0.638	0.518	0.633	0.710	0.651	0.659	0.720	<b>0.799</b>	
COSMO	0.881	5.788	0.887	0.569	0.469	0.685	0.444	0.569	0.546	0.412	0.510	<b>0.755</b>

**India**

	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	1.533	5.450	0.850	0.739	0.251	<b>0.859</b>						
EPRI	1.204	5.768	0.894	0.739	0.518	0.329	<b>0.860</b>					
ETRUST	1.025	6.024	0.892	0.805	0.656	0.501	0.579	<b>0.897</b>				
ERS	1.058	5.900	0.924	0.803	0.656	0.492	0.613	0.810	<b>0.896</b>			
EAC	1.485	5.009	0.885	0.721	0.607	0.488	0.704	0.612	0.779	<b>0.849</b>		
ELOYALTY	1.247	5.776	0.888	0.725	0.590	0.328	0.720	0.589	0.705	0.768	<b>0.851</b>	
COSMO	1.048	5.834	0.877	0.548	0.428	0.458	0.455	0.654	0.608	0.533	0.476	<b>0.740</b>

**UK**

	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	1.573	4.911	0.932	0.874	0.353	<b>0.935</b>						
EPRI	1.587	4.821	0.947	0.857	0.375	0.370	<b>0.926</b>					
ETRUST	1.008	5.996	0.953	0.911	0.438	0.321	0.399	<b>0.954</b>				
ERS	0.928	5.917	0.923	0.800	0.438	0.273	0.507	0.662	<b>0.894</b>			
EAC	1.713	3.609	0.940	0.839	0.375	0.554	0.612	0.368	0.417	<b>0.916</b>		
ELOYALTY	1.279	5.381	0.896	0.743	0.353	0.594	0.468	0.543	0.459	0.565	<b>0.862</b>	
COSMO	1.249	5.190	0.904	0.619	0.181	0.406	0.338	0.238	0.268	0.298	0.425	<b>0.787</b>

**US**

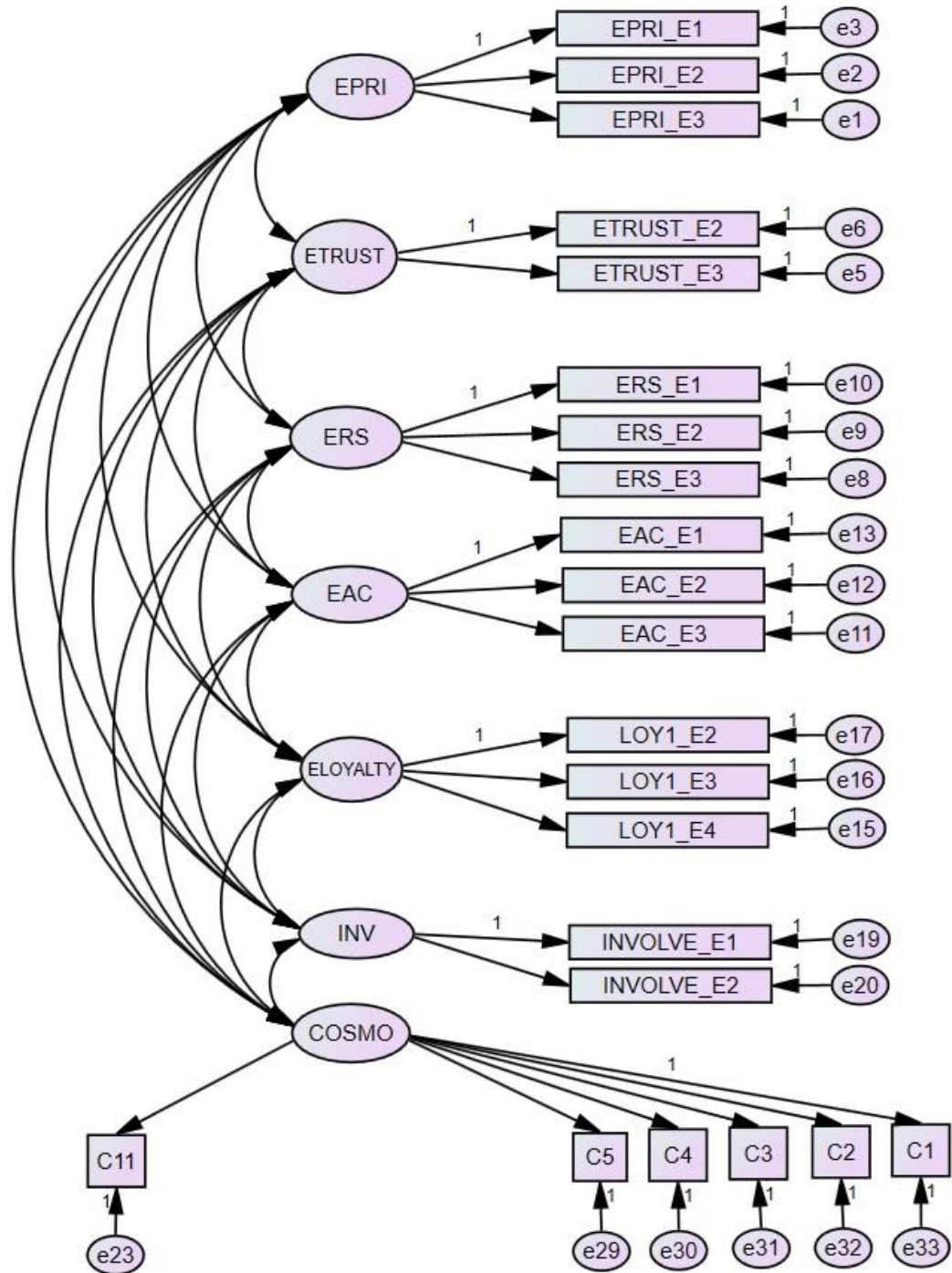
	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	1.455	5.128	0.883	0.790	0.311	<b>0.889</b>						
EPRI	1.324	5.403	0.924	0.802	0.496	0.512	<b>0.896</b>					
ETRUST	1.051	6.041	0.958	0.919	0.576	0.513	0.571	<b>0.959</b>				
ERS	0.969	6.048	0.932	0.821	0.576	0.471	0.643	0.759	<b>0.906</b>			
EAC	1.755	3.799	0.947	0.856	0.364	0.558	0.554	0.423	0.513	<b>0.925</b>		
ELOYALTY	1.374	5.497	0.915	0.782	0.496	0.430	0.704	0.508	0.658	0.603	<b>0.884</b>	
COSMO	1.408	5.015	0.918	0.658	0.083	0.285	0.248	0.218	0.238	0.288	0.255	<b>0.811</b>

Standard deviation (SD), Composite reliability (CR) > 0.7, Average variance extracted (AVE) > 0.5, Maximum shared variance (MSV)  
 Square root of AVE shown on diagonal (bold values), row- correlation values between model variable constructs

Latent variables (INV- product category involvement, EPRI - online perceived relationship investment, ETRUST - online ongoing trust, ERS - online relationship satisfaction, EAC - online affective commitment, ELOYALTY - online loyalty, COSMO - consumer cosmopolitanism)

#### 6.4.4 Full Respecification of Measurement Model - Electrical

Figure 6.11 Full respecified measurement model – Electrical



*EPRI* - online perceived relationship investment, *ETRUST* - online ongoing trust, *ERS* - online relationship satisfaction, *EAC* - online affective commitment, *ELOYALTY* - online loyalty, *INV* – product category involvement, *COSMO* – consumer cosmopolitanism

To ensure consistency across the clothing and electrical dataset, identical items were removed from each measurement model. The respecified electrical measurement model can be seen in Figure 6.11 and is identical to that of the clothing measurement model. Similar results were seen in the electrical dataset with good model fit demonstrated after estimation as shown in Table 6.19. The normed chi-square values are near the 3.00 threshold recommended with the majority well below 2.00 indicating strong model fit. The CFI and TLI values are all above 0.95 ranging from 0.959 to 0.980 and 0.950 and 0.976 respectively. The GFI figures show adequate fit with values from 0.884 to 0.948 with most near the 0.90 acceptable level. Values for the SRMR and RMSEA are very good suggesting strong model fit ranging from 0.038 to 0.052 and 0.45 to 0.061 respectively and well within common acceptable thresholds of 0.8 (SRMR) and 0.8 (RMSEA). Measurement error residuals were examined as a further indication of model fit and all appeared well below the maximum acceptable level of 2.38 ranging and from 0.06 to 1.84 in the electrical dataset across all countries.

**Table 6.19 Model Fit (Respecified measurement model – Electrical)**

<b>Electrical</b>									
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
<b>ALL</b>	577.437	188	3.071	0.000	0.980	0.976	0.948	0.038	0.045
<b>China</b>	335.625	188	1.785	0.000	0.965	0.957	0.894	0.043	0.056
<b>India</b>	363.259	188	1.932	0.000	0.959	0.950	0.884	0.052	0.061
<b>UK</b>	345.777	188	1.839	0.000	0.970	0.963	0.888	0.042	0.058
<b>US</b>	325.119	188	1.729	0.000	0.977	0.972	0.898	0.048	0.053

**Model fit indices with acceptable threshold levels:**  $\chi^2$  (chi square), df (degrees of freedom),  $\chi^2/df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$

Additional evidence supporting the re-specified model in the electrical dataset was given by the establishment of composite reliability ranging from 0.801 to 0.969 with all values above the 0.7 threshold, as seen in Table 6.20. Similarly AVE values were all above 0.5 ranging from 0.549 to 0.908 confirming convergent validity. Discriminant validity was



evident across all countries with all values for MSV below AVE values and the square root of AVE greater than inter construct correlations (Fornell & Larker, 1981).

Similarly to the clothing dataset, the electrical dataset shows good standardised factor loadings as seen in Table 6.21a and Table 6.21b, ranging from 0.55 to 0.98 with a corresponding  $R^2$  values from 0.30 to 0.96 and the majority above the commonly used threshold of 0.7. While a few loadings were lower at the 0.55 range, they were not removed as values above 0.5 are considered acceptable (Hair et al., 2018). The final set of indicators used can be seen in Table 6.21a and Table 6.21b. Respecification of the measurement model resulted in good model fit as demonstrated by good goodness of fit indices and overall positive and good standardised factor loadings coupled with acceptable  $R^2$  values. The measurement model was further supported in both the clothing and electrical sector and across all four countries with the establishment of composite reliability, convergent validity and discriminant validity. Strong verification of the measurement model provides further confidence in its adoption and robustness of results obtained.

**Table 6.20 Electrical Dataset - Respecified measurement model (Validity, Reliability & Correlation values)**

<b>ALL (Electrical)</b>												
	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	1.365	5.439	0.892	0.805	0.193	<b>0.897</b>						
EPRI	1.256	5.556	0.931	0.819	0.490	0.364	<b>0.905</b>					
ETRUST	1.017	6.024	0.925	0.861	0.598	0.428	0.551	<b>0.928</b>				
ERS	5.971	0.991	0.928	0.811	0.598	0.439	0.645	0.773	<b>0.901</b>			
EAC	1.686	4.644	0.946	0.854	0.389	0.421	0.624	0.358	0.488	<b>0.924</b>		
ELOYALTY	1.119	5.716	0.908	0.768	0.567	0.418	0.700	0.678	0.753	0.526	<b>0.876</b>	
COSMO	1.219	5.430	0.908	0.628	0.158	0.381	0.397	0.291	0.321	0.338	0.365	<b>0.793</b>
<b>China</b>												
	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	0.906	5.860	0.801	0.668	0.543	<b>0.817</b>						
EPRI	1.094	5.669	0.903	0.757	0.648	0.600	<b>0.870</b>					
ETRUST	1.027	5.786	0.914	0.841	0.674	0.595	0.661	<b>0.917</b>				
ERS	0.921	5.871	0.912	0.775	0.674	0.676	0.772	0.821	<b>0.881</b>			
EAC	1.179	5.292	0.884	0.718	0.598	0.465	0.773	0.667	0.707	<b>0.847</b>		
ELOYALTY	1.071	5.552	0.877	0.705	0.648	0.597	0.805	0.647	0.712	0.770	<b>0.839</b>	
COSMO	0.881	5.788	0.886	0.568	0.543	0.737	0.585	0.528	0.575	0.494	0.597	<b>0.754</b>
<b>India</b>												
	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	1.468	5.432	0.850	0.739	0.251	<b>0.859</b>						
EPRI	1.075	5.899	0.894	0.739	0.518	0.329	<b>0.860</b>					
ETRUST	0.946	6.088	0.892	0.805	0.656	0.501	0.579	<b>0.897</b>				
ERS	1.029	5.963	0.924	0.803	0.656	0.492	0.613	0.810	<b>0.896</b>			
EAC	1.351	5.225	0.885	0.721	0.607	0.488	0.704	0.612	0.779	<b>0.849</b>		
ELOYALTY	1.044	5.915	0.888	0.725	0.590	0.328	0.720	0.589	0.705	0.768	<b>0.851</b>	
COSMO	1.048	5.834	0.877	0.548	0.428	0.458	0.455	0.654	0.608	0.533	0.476	<b>0.740</b>
<b>UK</b>												
	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	1.469	5.127	0.854	0.746	0.294	<b>0.864</b>						
EPRI	1.493	4.982	0.904	0.759	0.626	0.424	<b>0.871</b>					
ETRUST	1.054	6.053	0.870	0.770	0.686	0.542	0.679	<b>0.878</b>				
ERS	1.005	5.920	0.930	0.815	0.706	0.510	0.718	0.828	<b>0.903</b>			
EAC	1.804	3.972	0.899	0.750	0.415	0.475	0.632	0.555	0.632	<b>0.866</b>		
ELOYALTY	1.140	5.520	0.904	0.758	0.706	0.475	0.791	0.770	0.840	0.644	<b>0.871</b>	
COSMO	1.249	5.190	0.877	0.549	0.342	0.442	0.585	0.576	0.582	0.482	0.549	<b>0.741</b>
<b>US</b>												
	SD	Mean	CR	AVE	MSV	INV	EPRI	ETRUST	ERS	EAC	ELOYALTY	COSMO
INV	1.429	5.344	0.935	0.878	0.146	<b>0.937</b>						
EPRI	1.127	5.678	0.926	0.807	0.496	0.247	<b>0.898</b>					
ETRUST	1.002	6.163	0.969	0.939	0.491	0.382	0.608	<b>0.969</b>				
ERS	0.991	6.125	0.951	0.865	0.521	0.322	0.691	0.701	<b>0.930</b>			
EAC	1.845	4.110	0.967	0.908	0.301	0.349	0.549	0.328	0.483	<b>0.953</b>		
ELOYALTY	1.163	5.876	0.934	0.826	0.521	0.340	0.704	0.643	0.722	0.479	<b>0.909</b>	
COSMO	1.407	5.015	0.918	0.658	0.085	0.197	0.292	0.170	0.236	0.185	0.236	<b>0.811</b>
Standard deviation (SD), Composite reliability (CR) > 0.7, Average variance extracted (AVE) > 0.5, Maximum shared variance (MSV)												
Square root of AVE shown on diagonal (bold values), row- correlation values between model variable constructs												
Latent variables (INV- product category involvement, EPRI - online perceived relationship investment, ETRUST - online ongoing trust, ERS - online relationship satisfaction, EAC - online affective commitment, ELOYALTY - online loyalty, COSMO - consumer cosmopolitanism)												

**Table 6.21a Standardised Factor Loadings and R<sup>2</sup> values for Respecified model (1)**

Construct	Item	Measurement Items	Indicator	Clothing					Electrical				
				All	China	India	UK	US	All	China	India	UK	US
<b>ELOYALTY</b>	2	Encourage friends and relatives to buy clothes/electrical products from it ?	LOY1_C2	.83 (.68)	.81 (.65)	.84 (.71)	.84 (.71)	.83 (.70)	.84 (.70)	.83 (.69)	.81 (.66)	.81 (.66)	.89 (.80)
	3	Recommend it to someone who seeks your advice ?	LOY1_C3	.90 (.82)	.82 (.67)	.87 (.76)	.94 (.89)	.95 (.89)	.92 (.85)	.89 (.79)	.90 (.82)	.91 (.82)	.96 (.92)
	4	Say positive things about it to other people?	LOY1_C4	.81 (.81)	.77 (.50)	.84 (.71)	.80 (.64)	.87 (.75)	.87 (.75)	.80 (.63)	.89 (.80)	.91 (.83)	.87 (.76)
<b>EPRI</b>	1	This clothing/electrical website makes efforts to increase regular customers' loyalty.	EPRI_C1	.88 (.78)	.90 (.80)	.79 (.62)	.92 (.85)	.87 (.76)	.89 (.79)	.90 (.80)	.82 (.67)	.91 (.83)	.88 (.77)
	2	This clothing /electrical website makes various efforts to improve its tie with regular customers.	EPRI_C2	.93 (.87)	.87 (.76)	.93 (.86)	.95 (.91)	.93 (.86)	.92 (.85)	.85 (.72)	.90 (.81)	.96 (.93)	.90 (.82)
	3	This clothing/electrical website really cares about keeping regular customers.	EPRI_C3	.88 (.78)	.83 (.69)	.86 (.74)	.90 (.82)	.89 (.79)	.91 (.82)	.86 (.74)	.89 (.79)	.92 (.85)	.91 (.83)
<b>EAC</b>	1	I feel emotionally attached to my clothing/electrical website	EAC_C1	.86 (.74)	.81 (.66)	.80 (.85)	.88 (.77)	.87 (.76)	.89 (.80)	.85 (.72)	.75 (.57)	.92 (.86)	.93 (.86)
	2	I feel a strong sense of identification with my clothing/electrical website	EAC_C2	.93 (.67)	.87 (.76)	.88 (.77)	.93 (.86)	.95 (.91)	.95 (.90)	.90 (.61)	.94 (.88)	.95 (.90)	.96 (.93)
	3	My clothing/electrical website has a great deal of personal meaning for me.	EAC_C3	.91 (.83)	.83 (.68)	.86 (.74)	.94 (.89)	.95 (.90)	.93 (.86)	.79 (.62)	.90 (.81)	.95 (.90)	.97 (.93)
<b>ERUST</b>	2	I trust this clothing/electrical website	ETRUST_C2	.94 (.88)	.91 (.83)	.91 (.83)	1.00 (1.00)	.95 (.90)	.93 (.86)	.90 (.81)	.86 (.74)	.95 (.90)	.97 (.93)
	3	I believe that this clothing/electrical website is trustworthy	ETRUST_C3	.92 (.85)	.91 (.83)	.88 (.78)	.90 (.82)	.97 (.94)	.93 (.87)	.93 (.87)	.90 (.80)	.93 (.87)	.97 (.93)

Standardised factors loadings with R<sup>2</sup> values in parentheses.  
Latent variables ( ELOYALTY - online loyalty, EPRI - online perceived relationship investment, EAC - online affective commitment, ETRUST - online ongoing trust)

**Table 6.21b Standardised Factor Loadings and R<sup>2</sup> values for Respecified model (2)**

Construct	Item	Measurement Items	Indicator	Clothing					Electrical				
				All	China	India	UK	US	All	China	India	UK	US
<b>INV</b>	1	Generally, I am someone who finds it	INVOLVE_C1	.91 (.82)	.84 (.70)	.89 (.78)	.92 (.84)	.90 (.81)	.88 (.78)	.83 (.69)	.81 (.66)	.91 (.82)	.89 (.80)
	2	Generally, I am someone who is interested in the kind of clothing and electrical products he or she buys.	INVOLVE_C2	.87 (.76)	.80 (.64)	.83 (.69)	.95 (.90)	.88 (.77)	.91 (.83)	.80 (.65)	.91 (.84)	.92 (.85)	.98 (.96)
<b>ERS</b>	1	How satisfied are you with the relationship you have had with your clothing/electrical store website	ERS_C1	.89 (.79)	.87 (.76)	.73 (.53)	.93 (.86)	.94 (.88)	.91 (.83)	.88 (.78)	.91 (.83)	.92 (.85)	.95 (.89)
	2	How pleased are you with the relationship you have had with your clothing/electrical store website	ERS_C2	.91 (.82)	.87 (.76)	.85 (.73)	.95 (.90)	.91 (.82)	.92 (.84)	.92 (.84)	.90 (.81)	.90 (.82)	.95 (.91)
	3	How favourably do you rate your relationship with your clothing/electrical store website	ERS_C3	.88 (.77)	.89 (.79)	.82 (.68)	.80 (.64)	.87 (.76)	.87 (.76)	.84 (.70)	.89 (.57)	.85 (.72)	.89 (.80)
<b>COSMO</b>													
<b>Open mindedness</b>	1	When travelling I make a conscious effort to get in touch with the local culture and traditions	C1	.74 (.55)	.70 (.50)	.73 (.53)	.77 (.59)	.68 (.47)	.74 (.55)	.70 (.49)	.72 (.52)	.77 (.59)	.68 (.47)
	2	I like having the opportunity to meet people from many different countries	C2	.91 (.83)	.86 (.74)	.85 (.73)	.93 (.86)	.95 (.90)	.91 (.83)	.87 (.75)	.84 (.71)	.93 (.86)	.95 (.90)
	3	I like to have contact with people from different cultures	C3	.91 (.84)	.86 (.74)	.82 (.68)	.95 (.90)	.95 (.90)	.92 (.84)	.87 (.75)	.83 (.68)	.95 (.90)	.95 (.90)
	4	I have got a real interest in other countries	C4	.84 (.71)	.76 (.57)	.78 (.61)	.82 (.67)	.89 (.79)	.84 (.71)	.74 (.55)	.79 (.62)	.82 (.67)	.89 (.79)
<b>Diversity appreciation</b>	5	Having access to products coming from many different countries is valuable to me	C5	.69 (.47)	.69 (.48)	.68 (.46)	.59 (.34)	.70 (.49)	.68 (.47)	.68 (.47)	.68 (.46)	.59 (.35)	.70 (.49)
<b>Consumption transcending borders</b>	11	I like trying original dishes from other countries	C11	.61 (.37)	.63 (.39)	.54 (.29)	.59 (.35)	.63 (.40)	.61 (.37)	.63 (.40)	.55 (.30)	.59 (.35)	.63 (.40)

Standardised factors loadings with R<sup>2</sup> values in parentheses. Latent variables (INV-product category involvement, ERS - online relationship satisfaction, COSMO - consumer cosmopolitanism)

### 6.4.5 Internal Consistency (Cronbach Alpha Co-efficient)

Internal consistency is further examined in the re-specified model using the Cronbach alpha co-efficient (Cronbach, 1951, Hair et al., 2018). Table 6.22 provides values for the Cronbach alpha co-efficient ( $\alpha$ ) across all datasets. Values are all above the acceptable threshold of 0.7 ranging from 0.799 to 0.969 with many values greater than 0.8 indicating excellent internal consistency (Hair et al., 2018).

**Table 6.22 Internal consistency with Cronbach alpha co-efficient**

<b>Clothing</b>						
<b>Construct</b>	<b>Items</b>	<b>All</b>	<b>China</b>	<b>India</b>	<b>UK</b>	<b>US</b>
ELOYALTY	3	0.880	0.839	0.885	0.884	0.910
EPRI	3	0.925	0.900	0.890	0.946	0.921
ETRUST	2	0.928	0.907	0.891	0.950	0.958
ERS	3	0.920	0.900	0.923	0.917	0.931
EAC	3	0.927	0.874	0.882	0.939	0.947
INV	2	0.883	0.799	0.849	0.891	0.912
<b>Electrical</b>						
<b>Construct</b>	<b>Items</b>	<b>All</b>	<b>China</b>	<b>India</b>	<b>UK</b>	<b>US</b>
ELOYALTY	3	0.904	0.875	0.885	0.906	0.928
EPRI	3	0.925	0.902	0.890	0.951	0.926
ETRUST	2	0.926	0.912	0.870	0.939	0.969
ERS	3	0.920	0.911	0.929	0.918	0.949
EAC	3	0.927	0.883	0.882	0.958	0.967
INV	2	0.891	0.801	0.850	0.909	0.933
COSMO	6	0.905	0.878	0.872	0.904	0.915
<i>Values shown - Cronbach Alpha Co-efficient (<math>\alpha</math>). Acceptable threshold <math>\geq 0.7</math>  <math>\alpha = rk / [1 + (k - 1)r]</math>, <math>k</math> = number of items, <math>r</math> = mean of the inter-item correlations (Cronbach, 1951) </i>						

## **6.5 Invariance Testing**

Invariance testing was undertaken to assess the equivalence of the online survey as a research instrument across all four countries providing evidence for meaningful comparisons to be made (Steenkamp & Baumgartner, 1998; Byrne & Campbell, 1999; Byrne & Van de Vijver, 2010; Kankaraš & Moors, 2010). While a range of techniques are available to assess invariance, this study focuses on the commonly adopted approach of multi-group confirmatory factor analysis to address concerns of large sample sizes and multiple groups (countries) in the analysis (Steenkamp & Baumgartner, 1998; Vandenberg & Lance, 2000; Milfont & Fischer, 2010). Configural Invariance is initially examined to ascertain if construct conceptualization is similar across countries by assessing pattern configuration of observed indicators and relevant factor loadings (Horn & McArdle, 1992; Steenkamp & Baumgartner, 1998; Kankaraš & Moors, 2010). Multi-group analysis in AMOS is employed with an unconstrained model examining model fit (Byrne, 2016). Following on from this a more stringent test of metric invariance is conducted examining the equality of observed indicators and corresponding latent constructs across countries based on factor loadings (Singh, 1995; Cheung & Rensvold, 2002). Metric invariance adds support to the inclusion of indicators across countries providing evidence of their equivalence (understanding) across countries. Measurement is conducted through the comparison of goodness-of-fit indices between a fully constrained and unconstrained model based on regression weights (Cheung & Rensvold, 2002; Chen, 2007; Meade et al., 2008; Fan & Sivo, 2009). Identification of metric invariance is based on differences in goodness-of-fit indices based on the following acceptable thresholds :  $\Delta CFI \leq 0.01$ ,  $\Delta RMSEA \leq 0.015$  (Cheung & Rensvold, 2002; Chen, 2007).

### 6.5.2 Configural Invariance

Configural Invariance is shown in the clothing and electrical dataset, using multi-group analysis in AMOS, where the measurement model is examined across 4 groups (China, India, UK and US), estimating groups freely (i.e. unconstrained). The clothing dataset shows good model fit as shown in table 6.23, with values meeting if not exceeding recommended thresholds ( $\chi^2 = 1284.765$ ,  $\chi^2 / df = 1.722$ ,  $p = 0.000$ ,  $CFI = 0.970$ ,  $TLI = 0.964$ ,  $GFI = 0.897$ ,  $SRMR = 0.043$ ,  $RMSEA = 0.027$ ). Similarly the electrical dataset provided good results for model fit with values of ( $\chi^2 = 1369.782$ ,  $\chi^2 / df = 1.822$ ,  $p = 0.000$ ,  $CFI = 0.969$ ,  $TLI = 0.961$ ,  $GFI = 0.891$ ,  $SRMR = 0.043$ ,  $RMSEA = 0.029$ ). Model fit data was good in both the clothing and electrical datasets indicating configural measurement invariance.

**Table 6.23 Configural Invariance**

	$\chi^2$	$\chi^2 / df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
Clothing	1284.765	1.722	0.000	0.970	0.964	0.897	0.043	0.027
Electrical	1369.782	1.822	0.000	0.969	0.961	0.891	0.043	0.029

**Model fit indices with acceptable threshold levels:**  $\chi^2$  (chi square),  $\chi^2 / df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$

*Multi-group analysis in AMOS 24 with unconstrained CFA model*

### 6.5.1 Metric Invariance

Metric invariance is examined through the differences in model fit indices between the constrained and unconstrained model, with constraints placed on regression weights. The results can be seen in Table 6.24, where the clothing dataset shows delta values of  $\Delta CFI = 0.01$  equalling the recommended 0.01 threshold and the  $\Delta RMSEA = 0.003$  falling below the recommended level of 0.015 (Chen, 2007) and hence demonstrating metric invariance. A similar situation is seen in the electrical dataset where the  $\Delta CFI =$

0.01 and the  $\Delta$  RMSEA = 0.004 both within the acceptable values of 0.01 and 0.015 respectively, supporting the existence of metric invariance.

**Table 6.24 Metric Invariance**

Model	Sector	$\chi^2$	$\chi^2/df$	df	p-level	CFI	TLI	GFI	SRMR	RMSEA
Unconstrained	Clothing	1284.765	1.722	752	0.000	0.970	0.964	0.897	0.043	0.027
	Electrical	1369.782	1.822	752	0.000	0.969	0.961	0.891	0.043	0.029
Constrained	Clothing	1570.563	1.920	818	0.000	0.959	0.954	0.881	0.148	0.030
	Electrical	1690.621	2.067	818	0.000	0.956	0.950	0.872	0.150	0.033
		$\Delta$ CFI	$\Delta$ RMSEA							
		Clothing	0.01	0.003						
		Electrical	0.01	0.004						

**Model fit indices with acceptable threshold levels:**  $\chi^2$  (chi square), df (degrees of freedom),  $\chi^2/df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$   
 $\Delta$  CFI  $\leq 0.01$  (difference in CFI between unconstrained and constrained model)  
 $\Delta$  RMSEA CFI  $\leq 0.01$  (difference in RMSEA between unconstrained and constrained model)

Invariance testing results provide support for both configural and metric level invariance reinforcing the employment of the respecified measurement model across the four countries. Given the support for equivalence of constructs and indicators across datasets, meaningful comparisons across the countries can be justified.

## 6.6 Bootstrapping

Nonparametric bootstrapping procedures were employed to examine the extent to which standard errors for tests of model parameters, deviated from Maximum Likelihood (ML) estimates based on non-normal data (Nevitt & Hancock, 2001; Hoyle, 2012; Hair, et al., 2012; Awang, 2015). While there is evidence to suggest the ML estimate technique is considered robust in light of its normality assumptions as discussed previously, bootstrapping techniques do not require assumptions of normality and can provide bootstrapped standard errors based on non-normal data (West et al., 1995; Yung & Bentler, 1996; Arbuckle et al., 2016; Byrne, 2016). Bootstrapping is employed at this stage purposefully following on from model specification to utilise the best fitting model



as suggested by a number of studies to limit issues with over-inflated values (Hoyle, 2012; Byrne, 2016). The 'naïve' bootstrap is employed to provide a comparison between the ML estimation and bootstrap technique allowing an evaluation of the stability of the results. The results in Table 6.25a, Table 6.25b, Table 6.26a and Table 6.26b are derived from 2000 bootstrap samples, with bias- corrected confidence intervals at 90% using the Bootstrap ML method in AMOS. Results are displayed for standard errors derived using ML estimation ( $SE_{ML}$ ) and nonparametric bootstrapping ( $SE_{BS}$ ) with the difference between the ML estimate and bootstrap mean estimate shown in the Bias column. Bias corrected confidence intervals (BC Confidence) are shown with lower and upper boundaries and the related significance through the p-value (P).

The clothing dataset (see Table 6.25a and Table 6.25b) shows results for  $SE_{ML}$  and  $SE_{BS}$  are relatively similar with low bias values suggesting standard errors produced using ML estimation does not deviate substantially from bootstrapped standard errors. The ALL dataset contains very low bias values ranging from 0.001 to 0.002. While China and India have slighter higher bias values ranging from 0.002 to 0.007 and 0.002 to 0.012 respectively, they are still within a good range indicating the robustness of the ML estimation method (Table 6.24). This is further reflected in the UK and US datasets with bias values ranging from -0.001 to 0.008 and -0.001 to 0.013 respectively (Table 6.26a and Table 6.26b). Interestingly the UK and US also demonstrate negative bias. In addition bias corrected confidence interval levels across all datasets do not include zero with significant p-values ( $<0.05$ ), rejecting the null hypothesis (parameter estimates for the two paths are zero) and so providing support for the faithfulness of path estimates.

**Table 6.25a Naive Bootstrapping – Clothing dataset (All, China and India)**

		ALL						China						India					
		Standard Error (S.E)			BC Confidence			Standard Error (S.E)			BC Confidence			Standard Error (S.E)			BC Confidence		
Indicator	Construct	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P
EPRI_C3	<-- EPRI	0.025	0.031	0.000	0.936	1.039	0.001	0.052	0.054	0.004	0.810	0.986	0.002	0.078	0.131	0.007	0.999	1.433	0.001
EPRI_C2	<-- EPRI	0.024	0.026	0.000	0.986	1.070	0.001	0.052	0.049	0.004	0.899	1.054	0.001	0.075	0.122	0.010	1.055	1.460	0.001
EPRI_C1 *	<-- EPRI				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
ETRUST_C3	<-- ETRUST	0.023	0.029	0.000	0.943	1.039	0.001	0.049	0.058	0.002	0.940	1.134	0.001	0.055	0.077	0.003	0.904	1.161	0.001
ETRUST_C2 *	<-- ETRUST				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
ERS_C3	<-- ERS	0.025	0.031	0.000	0.953	1.056	0.001	0.055	0.059	0.002	0.946	1.136	0.001	0.053	0.070	0.002	0.973	1.209	0.001
ERS_C2	<-- ERS	0.025	0.028	0.001	0.993	1.083	0.001	0.057	0.070	0.003	0.939	1.171	0.001	0.053	0.070	0.005	0.942	1.168	0.001
ERS_C1 *	<-- ERS				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
EAC_C3	<-- EAC	0.026	0.022	0.000	1.008	1.079	0.001	0.075	0.070	0.006	0.972	1.198	0.001	0.064	0.064	0.005	0.876	1.085	0.002
EAC_C2	<-- EAC	0.025	0.022	0.000	0.996	1.068	0.001	0.068	0.068	0.009	0.936	1.155	0.001	0.061	0.054	0.003	0.885	1.066	0.001
EAC_C1 *	<-- EAC				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
LOY1_C4	<-- ELOYALTY	0.029	0.039	0.002	0.783	0.912	0.001	0.074	0.089	0.003	0.804	1.090	0.001	0.055	0.064	0.004	0.767	0.982	0.001
LOY1_C3	<-- ELOYALTY	0.030	0.031	0.001	0.947	1.049	0.001	0.072	0.086	0.002	0.843	1.129	0.001	0.055	0.057	0.003	0.814	1.001	0.002
LOY1_C2 *	<-- ELOYALTY				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
INVOLVE_C1 *	<-- INV				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
INVOLVE_C2	<-- INV	0.034	0.033	0.001	0.871	0.978	0.001	0.070	0.079	0.008	0.765	1.024	0.002	0.091	0.098	0.000	0.802	1.129	0.001
COSMO_CULTURE3	<-- COSMO	0.043	0.049	0.001	0.747	0.909	0.001	0.122	0.124	0.005	0.952	1.371	0.001	0.081	0.097	0.004	0.512	0.833	0.001
COSMO_AD1	<-- COSMO	0.042	0.045	0.000	0.845	0.989	0.001	0.110	0.115	0.002	0.970	1.346	0.001	0.086	0.090	0.007	0.746	1.035	0.001
COSMO_OM4	<-- COSMO	0.041	0.048	0.000	1.049	1.206	0.001	0.106	0.109	0.005	1.034	1.386	0.001	0.082	0.137	0.009	0.806	1.262	0.001
COSMO_OM3	<-- COSMO	0.039	0.048	0.001	1.091	1.250	0.001	0.100	0.110	0.009	1.115	1.472	0.001	0.078	0.097	0.011	0.845	1.151	0.001
COSMO_OM2	<-- COSMO	0.039	0.047	0.002	1.091	1.245	0.001	0.097	0.099	0.007	1.087	1.408	0.001	0.083	0.141	0.012	0.885	1.337	0.001
COSMO_OM1 *	<-- COSMO				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
SE <sub>ML</sub> - Standard Error Estimates under Maximum Likelihood Estimation								SE <sub>BS</sub> Standard Error Bootstrap Estimates											
Bias - Difference between original SE <sub>ML</sub> estimate and Bootstrap mean estimate								BC Confidence - Bias corrected confidence intervals at 90%, lower and upper CI values											
* Values not displayed due to parameter constraints (regression weight =1) for model identification purposes																			
Bootstrapping conducted under MLBootstrap, 2000 number of bootstrap samples in AMOS 24																			

Table 6.25b Naïve bootstrapping – Clothing dataset (UK and US)

		UK						US					
		Standard Error (S.E)			BC Confidence			Standard Error (S.E)			BC Confidence		
Indicator	Construct	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P
EPRI_C3	<-- EPRI	0.039	0.049	0.002	0.845	1.004	0.002	0.052	0.051	0.000	0.931	1.097	0.001
EPRI_C2	<-- EPRI	0.036	0.032	-0.001	0.933	1.039	0.001	0.047	0.049	0.001	0.919	1.083	0.001
EPRI_C1 *	<-- EPRI				1.000	1.000	...				1.000	1.000	...
ETRUST_C3	<-- ETRUST	0.038	0.048	0.002	0.822	0.977	0.001	0.034	0.046	0.000	0.913	1.063	0.001
ETRUST_C2 *	<-- ETRUST				1.000	1.000	...				1.000	1.000	...
ERS_C3	<-- ERS	0.054	0.069	0.003	0.841	1.063	0.001	0.043	0.049	-0.002	0.873	1.037	0.001
ERS_C2	<-- ERS	0.043	0.049	0.003	1.046	1.208	0.001	0.040	0.043	-0.001	0.922	1.062	0.001
ERS_C1 *	<-- ERS				1.000	1.000	...				1.000	1.000	...
EAC_C3	<-- EAC	0.049	0.040	0.002	1.065	1.200	0.001	0.045	0.041	0.001	0.997	1.129	0.001
EAC_C2	<-- EAC	0.050	0.049	0.002	1.023	1.182	0.001	0.045	0.041	0.002	1.008	1.141	0.001
EAC_C1 *	<-- EAC				1.000	1.000	...				1.000	1.000	...
LOY1_C4	<-- ELOYALTY	0.047	0.073	0.002	0.583	0.824	0.001	0.052	0.074	0.003	0.780	1.022	0.001
LOY1_C3	<-- ELOYALTY	0.050	0.052	0.004	0.858	1.027	0.002	0.057	0.057	0.003	1.038	1.227	0.001
LOY1_C2 *	<-- ELOYALTY				1.000	1.000	...				1.000	1.000	...
INVOLVE_C1 *	<-- INV				1.000	1.000	...				1.000	1.000	...
INVOLVE_C2	<-- INV	0.052	0.051	0.001	0.919	1.083	0.001	0.067	0.068	0.003	0.838	1.057	0.001
COSMO_CULTURE3	<-- COSMO	0.083	0.084	0.002	0.675	0.949	0.001	0.099	0.117	0.009	0.785	1.166	0.001
COSMO_AD1	<-- COSMO	0.074	0.074	0.002	0.591	0.833	0.001	0.095	0.104	0.009	0.856	1.195	0.001
COSMO_OM4	<-- COSMO	0.078	0.084	0.006	0.962	1.238	0.001	0.099	0.112	0.013	1.162	1.528	0.001
COSMO_OM3	<-- COSMO	0.074	0.083	0.008	1.139	1.408	0.001	0.094	0.126	0.013	1.128	1.539	0.001
COSMO_OM2	<-- COSMO	0.072	0.079	0.006	1.072	1.330	0.001	0.096	0.123	0.013	1.181	1.588	0.001
COSMO_OM1 *	<-- COSMO				1.000	1.000	...				1.000	1.000	...
SE <sub>ML</sub> - Standard Error Estimates under Maximum Likelihood Estimation								SE <sub>BS</sub> Standard Error Bootstrap Estimates					
Bias - Difference between original SE <sub>ML</sub> estimate and Bootstrap mean estimate								BC Confidence - Bias corrected confidence intervals at 90%, lower and upper CI values					
* Values not displayed due to parameter constraints (regression weight =1) for model identification purposes													
Bootstrapping conducted under MLBootstrap, 2000 number of bootstrap samples in AMOS 24													

The electrical dataset produces similar results and unlike the clothing dataset displays negative bias values in the ALL, China and India datasets and not in the UK and US datasets as shown previously (see Tables 6.26a and 6.26b). Bias values in the ALL dataset are low ranging from -0.001 to 0.000. A similar pattern emerges in China (-0.001 to 0.008) and India (-0.001 to 0.014) again showing a limited variation between the  $SE_{ML}$  and  $SE_{BS}$  values adding further support for the robustness of the ML estimation employed (see Table 6.26a). Slight variations are additionally seen in the UK and US datasets with bias values ranging from 0.000 to 0.008 and 0.000 to 0.014 respectively as shown in Table 6.26b). Examining bias corrected confidence intervals again shows a similar pattern to the clothing sector. Zero values did not appear in any confidence intervals and all p-values were at a significant level ( $p < 0.05$ ) across all five datasets, concluding the null hypothesis can be rejected and relationships between constructs and related indicators can be justified.

**Table 6.26a Naïve bootstrapping – Electrical dataset (All, China and India)**

		ALL						China						India					
		Standard Error (S.E)			BC Confidence			Standard Error (S.E)			BC Confidence			Standard Error (S.E)			BC Confidence		
Indicator	Construct	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P
EPRI_C3	<-- EPRI	0.024	0.030	0.000	0.970	1.068	0.001	0.048	0.052	0.002	0.813	0.979	0.002	0.074	0.093	0.003	1.122	1.430	0.001
EPRI_C2	<-- EPRI	0.023	0.024	0.001	0.951	1.031	0.001	0.047	0.054	-0.001	0.778	0.957	0.001	0.064	0.058	-0.001	1.017	1.209	0.001
EPRI_C1 *	<-- EPRI				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
ETRUST_C3	<-- ETRUST	0.023	0.031	0.000	0.967	1.068	0.001	0.054	0.057	-0.002	1.042	1.229	0.001	0.060	0.093	0.009	0.876	1.175	0.002
ETRUST_C2 *	<-- ETRUST				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
ERS_C3	<-- ERS	0.023	0.031	0.000	0.886	0.986	0.001	0.049	0.058	0.005	0.789	0.980	0.001	0.041	0.063	0.006	0.819	1.025	0.001
ERS_C2	<-- ERS	0.022	0.027	0.000	0.991	1.080	0.001	0.052	0.063	0.005	1.008	1.215	0.001	0.044	0.065	0.006	0.909	1.119	0.001
ERS_C1 *	<-- ERS				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
EAC_C3	<-- EAC	0.022	0.021	0.001	0.982	1.051	0.001	0.065	0.066	0.001	0.850	1.069	0.001	0.071	0.086	0.007	0.933	1.220	0.001
EAC_C2	<-- EAC	0.021	0.018	0.000	0.989	1.051	0.001	0.060	0.054	0.003	0.975	1.149	0.001	0.070	0.070	0.006	0.989	1.221	0.001
EAC_C1 *	<-- EAC				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
LOY1_C4	<-- ELOYALTY	0.028	0.034	0.002	0.904	1.013	0.001	0.067	0.081	0.000	0.850	1.115	0.001	0.066	0.095	0.007	0.992	1.300	0.001
LOY1_C3	<-- ELOYALTY	0.028	0.027	0.002	0.987	1.075	0.002	0.064	0.074	-0.001	0.956	1.197	0.001	0.067	0.088	0.009	1.031	1.323	0.001
LOY1_C2 *	<-- ELOYALTY				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
INVOLVE_C1 *	<-- INV				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
INVOLVE_C2	<-- INV	0.040	0.044	-0.001	0.946	1.094	0.001	0.077	0.093	0.001	0.808	1.112	0.001	0.111	0.148	0.010	1.019	1.489	0.001
COSMO_CULTURE3	<-- COSMO	0.043	0.049	0.001	0.749	0.912	0.001	0.123	0.126	0.005	0.979	1.400	0.001	0.083	0.097	0.007	0.531	0.855	0.001
COSMO_AD1	<-- COSMO	0.042	0.045	0.000	0.844	0.989	0.001	0.111	0.120	0.002	0.959	1.357	0.001	0.087	0.092	0.009	0.751	1.047	0.001
COSMO_OM4	<-- COSMO	0.041	0.048	0.000	1.051	1.210	0.001	0.107	0.114	0.005	1.013	1.383	0.001	0.084	0.138	0.012	0.824	1.281	0.001
COSMO_OM3	<-- COSMO	0.039	0.049	0.001	1.093	1.253	0.001	0.101	0.115	0.008	1.130	1.512	0.001	0.079	0.099	0.012	0.855	1.179	0.001
COSMO_OM2	<-- COSMO	0.039	0.048	0.001	1.090	1.246	0.001	0.099	0.103	0.006	1.102	1.439	0.001	0.085	0.147	0.014	0.885	1.359	0.001
COSMO_OM1 *	<-- COSMO				1.000	1.000	...				1.000	1.000	...				1.000	1.000	...
SE <sub>ML</sub> - Standard Error Estimates under Maximum Likelihood Estimation									SE <sub>BS</sub> Standard Error Bootstrap Estimates										
Bias - Difference between original SE <sub>ML</sub> estimate and Bootstrap mean estimate									BC Confidence - Bias corrected confidence intervals at 90%, lower and upper CI values										
* Values not displayed due to parameter constraints (regression weight =1) for model identification purposes																			
Bootstrapping conducted under MLBootstraps, 2000 number of bootstrap samples in AMOS 24																			

**Table 6.26b Naïve bootstrapping – Electrical dataset (UK and US)**

UK					US								
		Standard Error (S.E)			BC Confidence			Standard Error (S.E)			BC Confidence		
Indicator	Construct	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P
EPRI_C3	<-- EPRI	0.040	0.050	0.002	0.914	1.076	0.001	0.049	0.068	0.000	0.936	1.166	0.001
EPRI_C2	<-- EPRI	0.036	0.038	0.001	0.939	1.067	0.001	0.051	0.063	0.000	0.949	1.154	0.001
EPRI_C1 *	<-- EPRI				1.000	1.000	...				1.000	1.000	...
ETRUST_C3	<-- ETRUST	0.039	0.049	0.000	0.864	1.024	0.001	0.030	0.038	0.001	0.948	1.075	0.001
ETRUST_C2 *	<-- ETRUST				1.000	1.000	...				1.000	1.000	...
ERS_C3	<-- ERS	0.049	0.064	0.001	0.861	1.070	0.001	0.039	0.057	0.001	0.874	1.063	0.001
ERS_C2	<-- ERS	0.046	0.045	0.001	0.966	1.112	0.001	0.032	0.048	0.004	0.927	1.087	0.002
ERS_C1 *	<-- ERS				1.000	1.000	...				1.000	1.000	...
EAC_C3	<-- EAC	0.036	0.032	0.000	0.972	1.077	0.001	0.032	0.028	0.000	0.966	1.060	0.001
EAC_C2	<-- EAC	0.036	0.033	0.000	0.975	1.085	0.001	0.031	0.025	0.001	0.954	1.037	0.001
EAC_C1 *	<-- EAC				1.000	1.000	...				1.000	1.000	...
LOY1_C4	<-- ELOYALTY	0.055	0.060	0.002	0.866	1.062	0.001	0.040	0.054	0.003	0.733	0.910	0.001
LOY1_C3	<-- ELOYALTY	0.055	0.051	0.002	0.886	1.056	0.001	0.038	0.033	0.002	0.904	1.014	0.002
LOY1_C2 *	<-- ELOYALTY				1.000	1.000	...				1.000	1.000	...
INVOLVE_C1 *	<-- INV				1.000	1.000	...				1.000	1.000	...
INVOLVE_C2	<-- INV	0.065	0.084	0.008	0.812	1.084	0.002	0.076	0.133	0.011	0.918	1.274	0.001
COSMO_CULTURE3	<-- COSMO	0.083	0.083	0.002	0.670	0.943	0.001	0.099	0.118	0.009	0.784	1.168	0.001
COSMO_AD1	<-- COSMO	0.073	0.073	0.002	0.590	0.830	0.001	0.095	0.104	0.010	0.854	1.191	0.001
COSMO_OM4	<-- COSMO	0.077	0.083	0.006	0.963	1.233	0.001	0.099	0.113	0.013	1.163	1.529	0.001
COSMO_OM3	<-- COSMO	0.073	0.082	0.008	1.128	1.397	0.001	0.094	0.126	0.014	1.134	1.546	0.001
COSMO_OM2	<-- COSMO	0.071	0.080	0.006	1.063	1.323	0.001	0.097	0.124	0.013	1.180	1.589	0.001
COSMO_OM1 *	<-- COSMO				1.000	1.000	...				1.000	1.000	...
SE <sub>ML</sub> - Standard Error Estimates under Maximum Likelihood Estimation									SE <sub>BS</sub> Standard Error Bootstrap Estimates				
Bias - Difference between original SE <sub>ML</sub> estimate and Bootstrap mean estimate									BC Confidence - Bias corrected confidence intervals at 90%,				
* Values not displayed due to parameter constraints (regression weight =1) for model identification purposes									lower and upper CI values				
Bootstrapping conducted under MLBootstrap, 2000 number of bootstrap samples in AMOS 24													

In addition the Bollen-Stine bootstrap method is applied to examine model fit (Bollen & Stine, 1992). As can be seen in Table 6.27 results are mixed with some situations showing good model fit where the Bollen-Stine p-value is greater than 0.05 and others poor to no model fit where the Bollen-Stine p-value is less than 0.05. The ALL in both the clothing and electrical datasets shows a Bollen-Stine p-value of 0.000 suggesting outright model rejection and acceptance of the null hypothesis. Most values on an individual country basis suggest poor model fit with the Bollen-Stine values slightly above 0.000 but still below 0.05. Values range from 0.017 to 0.038 in the clothing sector and 0.004 to 0.010 in the electrical sector respectively. Good model fit is shown in the clothing sector in India (Bollen-Stine p-value = 0.262) and in China (Bollen-Stine p-value = 0.066) and India (Bollen-Stine p-value = 0.092) in the electrical sector (as the Bollen-Stine p-value is  $> 0.05$ ).

**Table 6.27 Bootstrapping with Bollen-Stine**

Clothing										
	$x^2$	df	$x^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	Bollen-Stine (p-value)
ALL	524.690	188	2.791	0.000	0.982	0.977	0.953	0.039	0.042	0.000
China	327.009	188	1.739	0.000	0.964	0.956	0.897	0.043	0.054	0.038
India	308.678	188	1.652	0.000	0.970	0.963	0.899	0.046	0.051	0.262
UK	362.187	188	1.927	0.000	0.966	0.958	0.887	0.051	0.061	0.003
US	296.889	188	1.579	0.000	0.980	0.975	0.905	0.054	0.048	0.017
Electrical										
	$x^2$	df	$x^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	Bollen-Stine (p-value)
ALL	577.437	188	3.071	0.000	0.980	0.976	0.948	0.038	0.045	0.000
China	335.625	188	1.785	0.000	0.965	0.957	0.894	0.043	0.056	0.066
India	363.259	188	1.932	0.000	0.959	0.950	0.884	0.052	0.061	0.092
UK	345.777	188	1.839	0.000	0.970	0.963	0.888	0.042	0.058	0.010
US	325.119	188	1.729	0.000	0.977	0.972	0.898	0.048	0.053	0.004
Bollen-Stine bootstrap p-value <0.05, model rejected										
Model fit indices supplies with ML estimation										
Model fit indices with acceptable threshold levels: $\chi^2$ (chi square), df (degrees of freedom), $\chi^2/df$ (normed chi-square) $\leq 5$ , (p-value) $\leq 0.05$ , CFI (comparative fit index) $\geq 0.95$ , TLI (Tucker-Lewis index) $\geq 0.95$ , GFI (goodness of fit index) $\geq 0.90$ , SRMR (standardised root mean square residual) $\leq 0.08$ , RMSEA (root mean square error of approximation) $\leq 0.08$ )										

The variation in results is to be expected given the Bollen-Stine method's reliance on the chi-square value which is sensitive to sample size. Given the large sample size of this study it is not surprising Bollen-Stine p-values are well below 0.05 and suggest rejection of the model. This is particularly evident in the ALL dataset (N=1010) which has a Bollen-Stine p-value of 0.000 and is related to the largest dataset used in this study. Individual country Bollen-Stine p-values are much better and given the smaller sub-sample sizes show more favourable results. However, as suggested in the literature reliance on the Bollen-Stine p-value is limiting and other model fit indices should be examined (Nevitt & Hancock, 2001; Cheung & Lau, 2008; Kim & Millsap, 2014; Cheng & Wu, 2017). Examination of a range of goodness of fit indices ( $\chi^2/df$ , *CFI*, *TLI*, *GFI*, *SRMR* and *RMSEA*), in conjunction shows very good model fit in the clothing and electrical datasets across all countries, with all values within acceptable ranges. According to these model fit indices, overall there is good evidence to suggest good model fit across both sectors and all countries.

## **6.7 Common Method Variance**

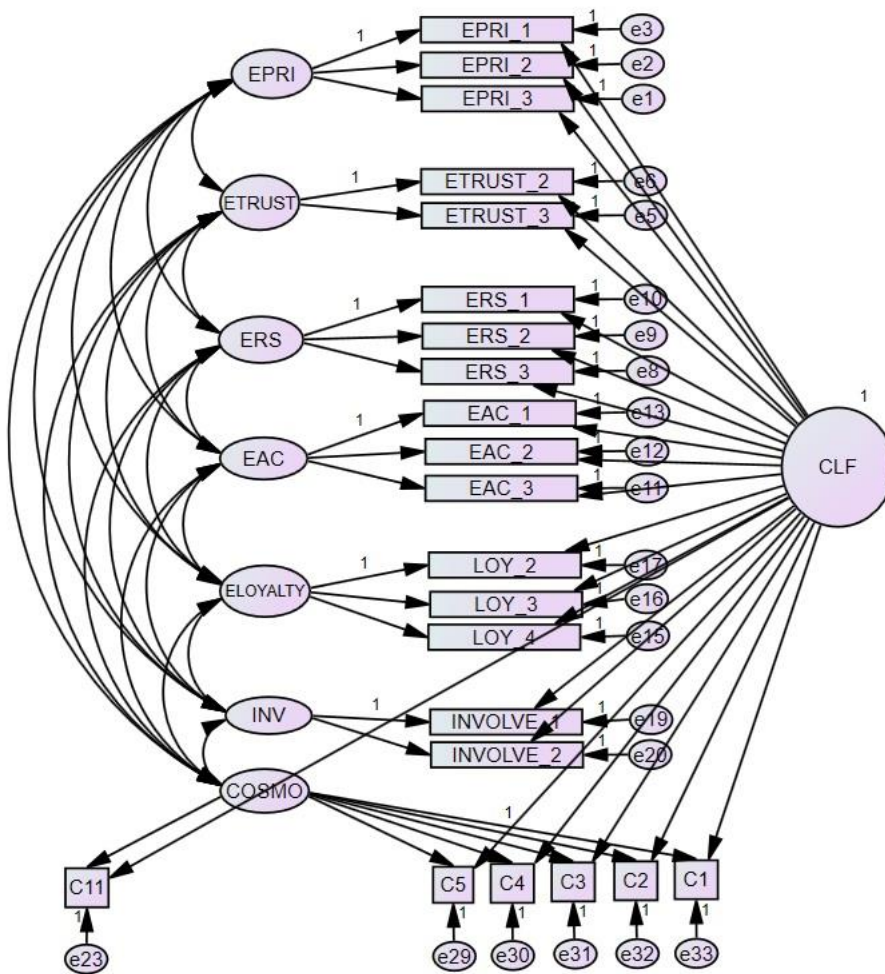
The previous chapter examined procedural steps to address issues with common method variance (CMV) and paid particular attention to the design and development of the online survey as a self-reported measure. The focus now turns to the post hoc statistical measures to identify potential concerns related to common method variance. Model respecification has been completed providing the best fitting model, limiting issues with model misspecification which has been shown as a potential concern with some model fit indices (Bentler & Chou, 1987; Barrett, 2007; Enders & Tofighi, 2008).



**6.7.1 Unmeasured Common Latent Factor Technique (CLF)**

Common method variance is examined with the use of an unmeasured latent method factor (CLF). The common latent factor (CLF) is used as an unmeasured variable on which all manifest indicators load, identifying potential concerns with CMV (Conger et al., 2000; Podsakoff, 2003; Johnson et al., 2011), see Figure 6.12. The advantage of this method takes into account various sources of common method variance rather than focusing on a single source. It further takes into account measurement error, allows differential fit of the model to be determined with and without CLF and does not assume method bias to be equal on all measures (MacKenzie & Podsakoff, 2012).

However, the disadvantages of this approach are that sources of bias cannot be identified and additional sources of variance that are not CMV related may be included (Podsakoff, 2003; Williams et al., 2010; Johnson et al., 2011). Using a nested model approach, model fit indices are compared with and without the CLF, highlighting concerns with CMV. Although the chi-square difference test is commonly used to assess model fit between nested models, this has not been adopted due to its sensitivity to large sample sizes (greater than 200) and non-normality, which are two key features of this study (Williams et al., 2010; Iacobucci, 2010; Kenny, 2015). To address these concerns, model fit is compared through an absolute fit index (RMSEA) and a comparative fit index (CFI), which are more suitable given their insensitivity to non-normality and sample size (Kenny, 2015). Acceptable values are differences in CFI values equal to less than 0.010 and differences in RMSEA values equal to or less than 0.015 (Cheung & Rensvold, 2002; Chen, 2007).

**Figure 6.12 Unmeasured Common Latent Factor Technique (CLF)**


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CLF – Common Latent Factor  
 Indicators relate to clothing and electrical datasets (C and E annotation removed)

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Figures providing a nested model comparison are provided in Table 6.28, showing the differences in values between RMSEA and CFI values between Model 1 CFA (measurement model freely estimated) and Model 2 CLF (with the common latent factor). This is additionally examined by country and sector. The clothing sector contains

relatively low CFI delta values with differences ranging from  $\Delta\text{CFI} = 0.002$  to  $0.008$  and low RMSEA delta values ranging from  $\Delta\text{RMSEA} = 0.000$  to  $0.004$ , suggesting common method variance has a minimal influence. The electrical sector shows slightly higher differences with delta CFI values ranging from  $\Delta\text{CFI} = 0.009$  to  $0.018$ . Some values are slightly higher than the acceptable threshold change in CFI values of  $0.01$ . These are found in China ( $0.012$ ), India ( $0.018$ ), UK ( $0.014$ ) and US ( $0.011$ ). However, corresponding values for the change in RMSEA are within acceptable levels ( $\Delta \leq 0.015$ ) suggesting common method variance is not an issue. Results for the delta RMSEA values are  $\Delta\text{RMSEA}$  - China ( $0.008$ ), India ( $0.012$ ), UK ( $0.013$ ) and US ( $0.012$ ), with the ALL dataset ( $0.010$ ). While model fit is slightly better with the CLF added model in the electrical dataset, the differences between the two models is not greatly significant. Common method variance is not identified as a problem through the unmeasured common latent factor and so confirms confidence in results from the respecified model.

**Table 6.28 Common Method Variance with unmeasured latent factor (CLF)**

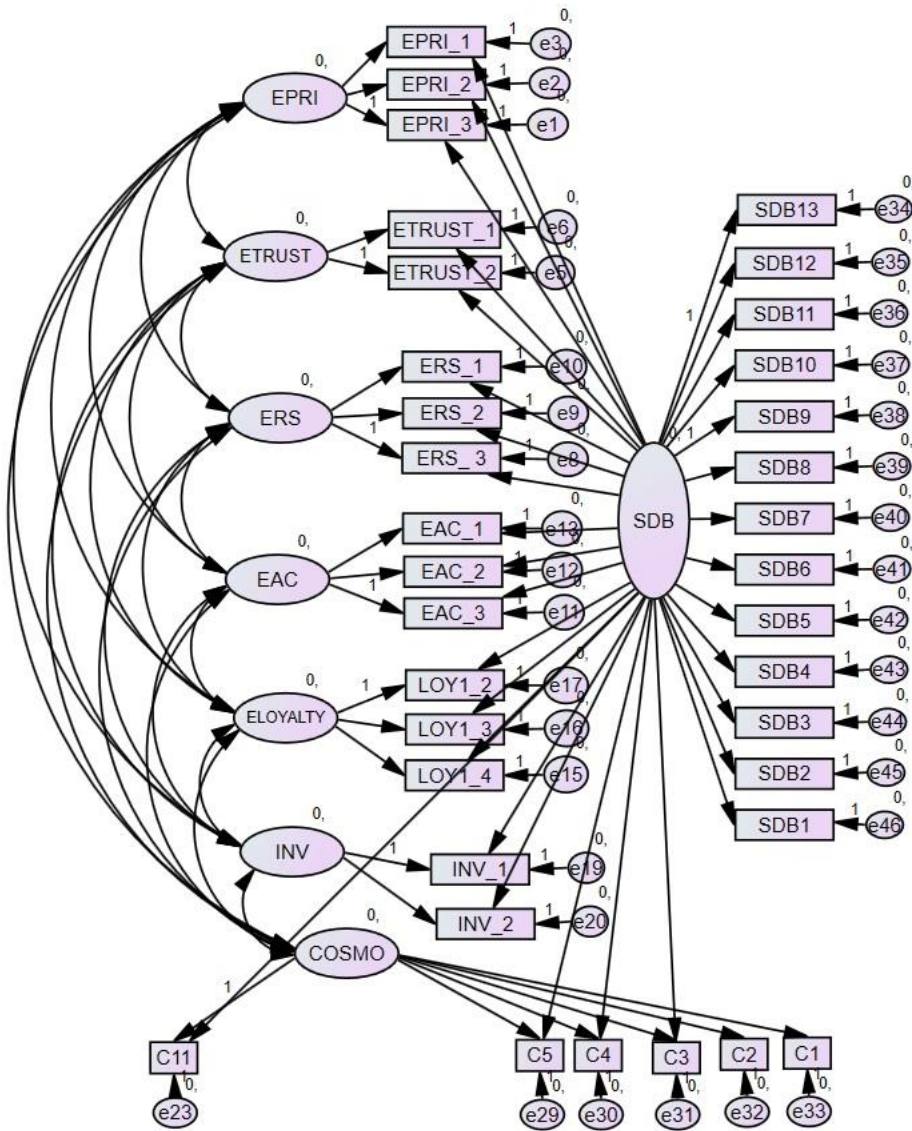
<b>Clothing</b>												
	<b>Model</b>	<b><math>\chi^2</math></b>	<b>df</b>	<b><math>\chi^2/df</math></b>	<b>p-level</b>	<b>CFI</b>	<b>TLI</b>	<b>GFI</b>	<b>SRMR</b>	<b>RMSEA</b>	<b><math>\Delta</math> CFI</b>	<b><math>\Delta</math> RMSEA</b>
<b>Unmeasured method effects</b>												
<b>All</b>	<b>Model 1, CFA</b>	524.699	188	2.791	0.000	0.982	0.977	0.953	0.039	0.042	0.002	0.001
	<b>Model 2, CLF added</b>	458.580	168	2.730	0.000	0.984	0.978	0.960	0.037	0.041		
<b>China</b>	<b>Model 1<sub>CH</sub>, CFA</b>	327.009	188	1.739	0.000	0.964	0.956	0.897	0.004	0.054	0.005	0.000
	<b>Model 2<sub>CH</sub>, CLF added</b>	289.365	168	1.722	0.000	0.969	0.957	0.909		0.054		
<b>India</b>	<b>Model 1<sub>IN</sub>, CFA</b>	308.678	188	1.642	0.000	0.970	0.963	0.899	0.046	0.051	0.007	0.004
	<b>Model 2<sub>IN</sub>, CLF added</b>	260.152	168	1.549	0.000	0.977	0.969	0.913	0.038	0.047		
<b>UK</b>	<b>Model 1<sub>UK</sub>, CFA</b>	327.009	188	1.739	0.000	0.964	0.956	0.897	0.051	0.054	0.008	0.004
	<b>Model 2<sub>UK</sub>, CLF added</b>	312.527	168	1.860	0.000	0.972	0.961	0.902	0.048	0.058		
<b>US</b>	<b>Model 1<sub>US</sub>, CFA</b>	296.889	188	1.579	0.000	0.980	0.975	0.905	0.054	0.048	0.002	0.000
	<b>Model 2<sub>US</sub>, CLF added</b>	265.931	168	1.583	0.000	0.982	0.975	0.916	0.053	0.048		
<b>Electrical</b>												
	<b>Model</b>	<b><math>\chi^2</math></b>	<b>df</b>	<b><math>\chi^2/df</math></b>	<b>p-level</b>	<b>CFI</b>	<b>TLI</b>	<b>GFI</b>	<b>SRMR</b>	<b>RMSEA</b>	<b><math>\Delta</math> CFI</b>	<b><math>\Delta</math> RMSEA</b>
<b>Unmeasured method effects (CLF)</b>												
<b>All</b>	<b>Model 1, CFA</b>	577.437	188	3.071	0.000	0.980	0.976	0.948	0.004	0.045	0.009	0.010
	<b>Model 2, CLF added</b>	376.769	166	2.270	0.000	0.989	0.985	0.966	0.019	0.035		
<b>China</b>	<b>Model 1<sub>CH</sub>, CFA</b>	335.625	188	1.785	0.000	0.965	0.957	0.894	0.043	0.056	0.012	0.008
	<b>Model 2<sub>CH</sub>, CLF added</b>	262.794	166	1.583	0.000	0.977	0.968	0.913	0.019	0.048		
<b>India</b>	<b>Model 1<sub>IN</sub>, CFA</b>	363.259	188	1.932	0.000	0.959	0.950	0.884	0.052	0.061	0.018	0.012
	<b>Model 2<sub>IN</sub>, CLF added</b>	256.769	166	1.601	0.000	0.977	0.968	0.913	0.029	0.049		
<b>UK</b>	<b>Model 1<sub>UK</sub>, CFA</b>	345.777	188	1.839	0.000	0.970	0.963	0.888	0.042	0.058	0.014	0.013
	<b>Model 2<sub>UK</sub>, CLF added</b>	248.957	166	1.500	0.000	0.984	0.978	0.921	0.027	0.045		
<b>US</b>	<b>Model 1<sub>US</sub>, CFA</b>	325.119	188	1.729	0.000	0.977	0.972	0.898	0.048	0.053	0.011	0.012
	<b>Model 2<sub>US</sub>, CLF added</b>	236.312	166	1.424	0.000	0.988	0.984	0.923	0.027	0.041		
<b>CFA - measurement model, CLF - common latent factor (unmeasured method effect)</b>												
<b>Model 1 includes the re-specified CFA and Model 2 includes the addition of the CLF</b>												
<b>Model 1 and Model 2<sub>CH</sub> (China dataset n=250)</b>												
<b>Model 1 and Model 2<sub>IN</sub> (India dataset n=250)</b>												
<b>Model 1 and Model 2<sub>UK</sub> (UK dataset n=253)</b>												
<b>Model 1 and Model 2<sub>US</sub> (US dataset n=257)</b>												
<b><math>\Delta</math> CFI (Model 2 CFI - Model 1 CFI), acceptable CFI <math>\leq 0.01</math></b>												
<b><math>\Delta</math> RMSEA (Model 2 RMSEA - Model 1 RMSEA), RMSEA <math>\leq 0.015</math></b>												
<b>Model fit indices with acceptable threshold levels: <math>\chi^2</math> (chi square), <math>\chi^2/df</math> (normed chi-square) <math>\leq 5</math>, (p-value) <math>\leq 0.05</math>, CFI (comparative fit index) <math>\geq 0.95</math>, TLI (Tucker-Lewis index) <math>\geq 0.95</math>, GFI (goodness of fit index) <math>\geq 0.90</math>, SRMR (standardised root mean square residual) <math>\leq 0.08</math>, RMSEA (root mean square error of approximation) <math>\leq 0.08</math></b>												

### **6.7.2 Directly Measured Latent Factor Technique (Social Desirability)**

To further examine common method variance, the directly measured latent factor technique is adopted and relies on a specific bias construct (Podsakoff, 2003; MacKenzie & Podsakoff, 2012). This approach differs to the previous unmeasured common latent factor technique in that it controls for a specific type of bias thought to affect the model (Podsakoff, 2003). Social Desirability Bias (SDB) is a common method bias found in international studies and is employed as the directly measured latent factor for this test (Chang et al., 2010; Steenkamp et al., 2010). The advantages of this method are that (i) it identifies the potential source of common method variance (in this case social desirability), (ii) measurement errors can be estimated and (iii) effects of SD on the individual measures can be calculated as they are not constrained to be equal. The issue with this approach is that it assumes only one specific common method bias can be identified and examined through valid measures (Podsakoff, 2003; Williams et al., 2010; Baumgartner & Weijters, 2012; Viswanathan & Kayande, 2012). However, social desirability as a directly measured latent factor aligns well with the study as it has proven valid measures and is often cited in studies as a common source of bias (Bernardi, 2006; MacKenzie & Podsakoff, 2012).

The social desirability construct is allowed to load on to all indicators of the theoretical constructs in the CFA respecified model (see Figure 6.13). The model is then examined with and without the influence of SDB highlighting any issues of common method variance caused by SDB (Podsakoff, 2003; Williams et al., 2010). ALL datasets of the clothing and electrical datasets are used to provide an overall assessment of any common method variance issues.

Figure 6.13 Directly Measured Latent Factor Technique (Social Desirability)



SDB– Social Desirability (directly measured latent methods factor)  
Indicators relate to clothing and electrical datasets (C and E annotation removed)

A nested model comparison is conducted using goodness-of-fit indices given the large sample size. Similarly to the CLF analysis model fit is examined through differences in CFI and RMSEA values. Additionally, differences in TLI values are examined providing a wider range of model fit indices. Acceptable thresholds include;  $CFI \leq 0.010$ ,  $TLI \leq 0.010$  and  $RMSEA \leq 0.015$  (Cheung & Rensvold, 2002b; Chen, 2007). Model comparison is made with a freely constrained and zero constrained model (Rafferty & Griffin, 2004; Williams et al., 2010; Williams & McGonagle, 2016). Model fit results can be seen in Table 6.29.

**Table 6.29 Common Method Variance with measured latent factor (SDB)**

Model	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
<b><i>Clothes (ALL)</i></b>									
Model A, No SDB (CFA)	577.437	188.000	3.071	0.000	0.980	0.976	0.931	0.032	0.045
Model 1, SDB (free)	1176.916	517.000	2.276	0.000	0.966	0.961	0.933	0.045	0.036
Model 2, SDB (zero)	1235.023	539.000	2.291	0.000	0.956	0.961	0.930	0.058	0.036
	$\Delta$ CFI	$\Delta$ TLI	$\Delta$ RMSEA						
Model 1 vs Model 2	0.010	0.000	0.000	Test for significant method effects					
Model	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
<b><i>Electrical (ALL)</i></b>									
Model A, No SDB (CFA)	577.437	188.000	3.071	0.000	0.980	0.976	0.931	0.032	0.045
Model 1, SDB (free)	2607.740	551.000	4.733	0.000	0.906	0.893	0.893	0.103	0.061
Model 2, SDB (zero)	2673.341	574.000	4.657	0.000	0.904	0.895	0.892	0.093	0.060
	$\Delta$ CFI	$\Delta$ TLI	$\Delta$ RMSEA						
Model 1 vs Model 2	0.002	0.002	0.001	Test for significant method effects					
Model A - CFA respecified model (no SDB)									
Model 1 (free) - Measurement model with unequal loadings from method factor (unconstrained)									
Model 2 (zero) - Measurement model with no loadings from method factor (parameter regression weights set to 0)									
CFA - measurement model, SDB - social desirability (measured method effect), ALL (aggregate dataset, N = 1010)									
Model 1 includes the respecified CFA and Model 2 includes the addition of the SDB									
$\Delta$ CFI (Model 2 CFI - Model 1 CFI), acceptable CFI $\leq 0.01$ $\Delta$ TLI (Model 2 TLI - Model 1 TLI), acceptable TLI $\leq 0.01$									
$\Delta$ RMSEA (Model 2 RMSEA - Model 1 RMSEA), RMSEA $\leq 0.015$									
Model fit indices with acceptable threshold levels: $\chi^2$ (chi square), $\chi^2/df$ (normed chi-square) $\leq 5$ , (p-value) $\leq 0.05$ , CFI (comparative fit index) $\geq 0.95$ , TLI (Tucker-Lewis index) $\geq 0.95$ , GFI (goodness of fit index) $\geq 0.90$ , SRMR (standardised root mean square residual) $\leq 0.08$ , RMSEA (root mean square error of approximation) $\leq 0.08$ )									

Model 1 includes the SDB latent methods factor and is initially unconstrained (parameters are freely estimated). Model 2 contains the SDB with parameters constrained to zero. This effectively provides model fit indices when the SDB latent methods factor has no influence in the model (Rafferty & Griffin, 2004; Williams et al., 2010). A comparison is

then made between models with differences in CFI, TLI and RMSEA values (see Table 6.29). In comparing the freely constrained and zero constrained models in the clothing sector (Model 1 vs Model 2), the delta CFI values  $\Delta\text{CFI}$  (0.010),  $\Delta\text{TLI}$  (0.000) and  $\Delta\text{RMSEA}$  (0.000) are all within acceptable thresholds ( $\text{CFI} \leq 0.01$ ,  $\text{TLI} \leq 0.01$  and  $\text{RMSEA} \leq 0.015$ , suggesting no significant method effects with SDB (Williams et al., 2010). This is additionally seen in the electrical dataset, with values from model comparisons falling in acceptable levels ( $\Delta\text{CFI} = 0.002 < 0.010$ ,  $\Delta\text{TLI} = 0.002 < 0.010$  and  $\Delta\text{RMSEA} = 0.001 < 0.015$ ), further establishing no significant method effects from SDB. Both sets of results additionally confirm the lack of bias from social desirability identified in Chapter five (Table 5.6 correlation between SDB and constructs in clothing and electrical datasets). Both examinations of common method variance through the unmeasured common latent factor (CLF) and the directly measured latent methods factor (SDB), demonstrated insignificant method effects.

## **6.8 Summary**

The purpose of this chapter was to examine the suitability of the measurement model and the accuracy of the observed indicators in reflecting latent factors. The first section focussed on a single CFA where individual latent factors and their indicators were examined. While there was general support for the inclusion of latent factors and their related indicators, some issues were highlighted concerning some items which were noted for further examination. The next section examined the full CFA providing a more coherent overview for both the clothing and electrical datasets. Initially model fit was poor but was substantially improved after model respecification. This respecified model was used in the subsequent analysis. A total of 11 items were removed with 22 items retained alongside the initial 7 latent factors. The respecified model demonstrated good



composite reliability, convergent validity and discriminant validity alongside overall strong factor loadings and  $R^2$  values across both sectors and countries, providing support for its suitability. Additionally strong internal consistency was evident with high Cronbach alpha co-efficients (all above 0.7). This was additionally reinforced with the verification of configural and metric invariance across the country datasets, demonstrating the equivalence of constructs and indicators and justification of the respecified model to make meaningful comparisons. The following section examined the robustness of the ML estimation technique in light of non-normal distributions. Applying naïve bootstrapping techniques and use of the Bollen-Stine method, there was strong evidence to defend the inclusion of the ML estimation technique in future analysis. The final section examined the role of common method variance using the unmeasured common latent factor technique (CLF) and the directly measured latent methods factor technique (SDB). Results suggested the impact of common method variance was low and no further adjustments required. The analysis conducted in this chapter provides strong evidence for the inclusion of the respecified measurement model which is therefore used to establish the structural model in the next chapter providing a robust foundation for the measurement of hypotheses previously discussed.

## **CHAPTER SEVEN**

### **7.0 STRUCTURAL MODEL and MODERATION**

#### **7.1 Introduction**

This chapter progresses the analysis with the transition of the measurement model into the structural model. The first section examines the relationships between the latent variables through path analysis across both sectors and all countries. The structural model seeks to establish evidence for the proposed argument for the positive effect of EPRI on ELOYALTY through the individual dimensions of RQ (ETRUST, ERS and EAC). Control variables including age, gender and income are then examined for any confounding effects that may affect the analysis. The next section examines invariance testing at the structural model level to ensure equivalence with comparisons across the four countries. Following on from this Bootstrapping is examined to assess the robustness of the ML estimation technique at the structural model level. The latter part of the chapter examines the moderating effect of consumer cosmopolitanism, product category involvement and national culture, providing further insight into online loyalty formation across countries. This is conducted using conditional process analysis and simple slopes are used to visually display moderating effects. The last section examines alternative model testing and provides an overview of the acceptance and rejection of hypotheses concluding with a summary.

#### **7.2 Structural Model**

The structural model for the clothing sector is shown in Figure 7.1a and for the electrical sector in Figure 7.1b. Both models are identical with 14 retained indicators and based on the respecified measurement model.

Figure 7.1a Structural Model for Clothing sector

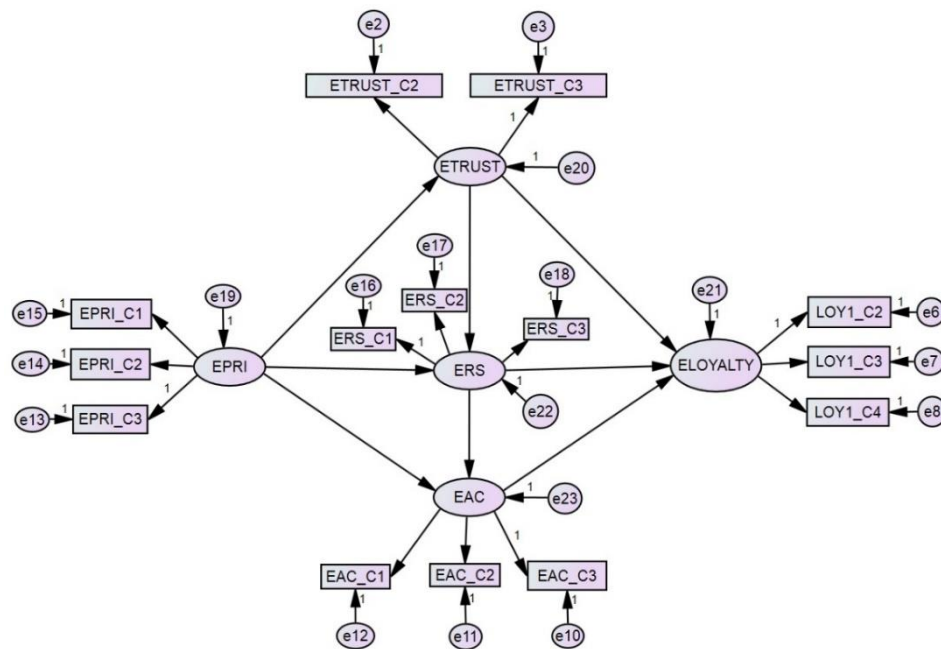
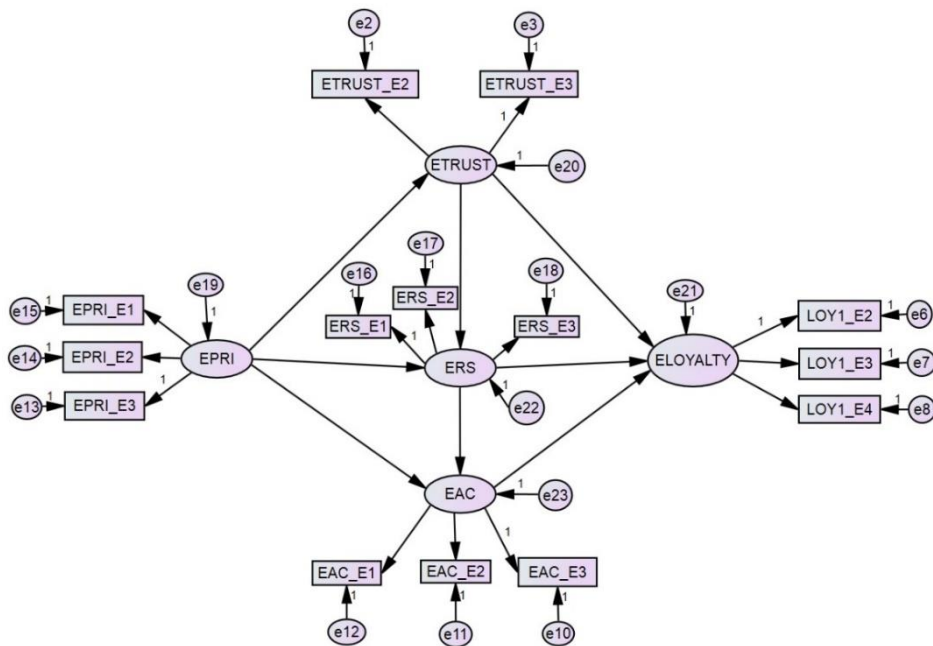


Figure 7.1b Structural Model for Electrical sector



*EPRI* - online perceived relationship investment, *ETRUST* - online ongoing trust, *ERS* - online relationship satisfaction, *EAC* - online affective commitment, *ELOYALTY* - online loyalty

### **7.2.1 Structural Model Fit**

Estimation of the structural model for the clothing and electrical dataset provide a good model fit. Results in Table 7.1 show the goodness-of-fit measures for both the clothing and electrical datasets. The clothing dataset shows a slightly better model fit compared to the electrical dataset, although both models generally show good model fit. Results from the clothing dataset show a slightly high normed chi-square value ( $\chi^2/df$ ) of 3.392 but still around acceptable levels of 3.00 with better values for each country subset. The CFI and TLI values are all above minimum threshold levels across all country datasets of 0.95 ranging from 0.968 to 0.987 and 0.957 to 0.983 respectively indicating very good model fit. Furthermore all SRMR values are well below the 0.08 limit (ranging from 0.036 to 0.059) with RMSEA values within acceptable values around 0.8 (ranging from 0.049 to 0.080) both supporting good fit. This is additionally supported with GFI values all above 0.90 (0.910 to 0.968). China, India and the US all display very good model fit across all goodness-of-fit indices with the UK showing good model fit. The electrical dataset displays slightly less good model fit although values are still in acceptable ranges. The normed chi-square values ( $\chi^2/df$ ) are all very good for each country dataset ranging from 2.122 to 2.586 and well below the accepted threshold of 3.00. The ALL dataset shows a slightly higher value (4.604) with a  $\chi^2$  value of 317.684, which could be attributable to the sensitivity of the goodness-of-fit-measure on sample size. While the country datasets have smaller sample sizes ranging from 250 to 257, the ALL dataset has a substantially larger sample size of 1010, which could impact the normed chi-square value. Moreover, examination of additional indices in the ALL dataset reveals good model fit (CFI = 0.982, TLI = 0.976, GFI = 0.958, SRMR = 0.041, RMSEA = 0.060).

**Table 7.1 Structural model- Clothing and Electrical, goodness-of-fit indices**

<b>Clothing</b>									
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
<b>ALL</b>	234.024	69	3.392	0.000	0.987	0.983	0.968	0.038	0.049
<b>China</b>	124.189	69	1.800	0.000	0.979	0.972	0.936	0.036	0.057
<b>India</b>	127.231	69	1.844	0.000	0.980	0.973	0.930	0.043	0.058
<b>UK</b>	181.003	69	2.623	0.000	0.968	0.957	0.910	0.059	0.080
<b>US</b>	129.617	69	1.879	0.000	0.983	0.978	0.933	0.054	0.059

<b>Electrical</b>									
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA
<b>ALL</b>	317.684	69	4.604	0.000	0.982	0.976	0.958	0.041	0.060
<b>China</b>	146.420	69	2.122	0.000	0.974	0.965	0.926	0.040	0.067
<b>India</b>	178.429	69	2.586	0.000	0.965	0.954	0.913	0.043	0.043
<b>UK</b>	153.403	69	2.223	0.000	0.977	0.970	0.921	0.045	0.070
<b>US</b>	168.406	69	2.441	0.000	0.977	0.969	0.914	0.048	0.075

**Model fit indices with acceptable threshold levels:**  $\chi^2$  (chi square), df (degrees of freedom),  $\chi^2/df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$

Examining each country dataset, the CFI and TLI values are above 0.95 ranging from 0.965 to 0.977 and 0.954 to 0.969 respectively for the electrical dataset. The SRMR values are all well below 0.9 (ranging from 0.040 to 0.048) and RMSEA values all well below acceptable levels of 0.8 (ranging from 0.043 to 0.075). Furthermore, GFI values are all above 0.90 (ranging from 0.913 to 0.926) adding support for good model fit across all countries. In comparison to the electrical dataset, the clothing dataset displays a slightly a better model fit.

### 7.3 Control Variables

Control variables were added to the analysis to examine any potentially confounding effects. Three key single indicator control variables identified as of particular relevance and included as part of this study include; age, gender and income. While not of theoretical interest to the main model, their inclusion accounted for any rival explanations and any impact on hypothesised effects.

### **7.3.1 Age**

The literature regarding the impact of age on online shopping intentions is varied with more recent literature indicating a closing gap between younger (18-35) and older consumers (45+), (Lian & Yen, 2014; Zhou et al., 2014; Carlson et al., 2015; Fang et al., 2016). Prior literature has focused on the drivers of online purchase intention of younger consumers (primarily millennials) who are generally seen as the key demographic driving global e-commerce. However, more recent literature has examined online shopping behavioural factors relating to older consumers and has moved away from examining technology adoption (Sharma et al., 2012; Lian & Yen, 2014; Zhou et al., 2014; Mpinganjira, 2015; Fang et al., 2016). Studies have shown older consumers may value online trust more than younger consumers who may exhibit more risk taking attitudes (Forsythe & Shi, 2003; Lian & Yen, 2014; Mpinganjira, 2015). Additionally satisfaction through e-service quality may be stronger for younger consumers compared to older consumers due to their lower levels of life accumulated experiences (Ganesan-Lim et al., 2008; Sharma et al., 2012). This control variable was added to include for any variances arising from younger and older consumers. This is particularly relevant to the UK dataset which demonstrated a substantial older demographic in the sample composition. The other countries reflected more traditional patterns confirming the importance of millennials in the sample composition.

### **7.3.2 Gender**

Gender is shown in a number of studies to have a significant effect on online purchase intention and on perceptions towards relationship quality and its individual dimensions (Athanasopoulou, 2009; Kim & Peterson, 2017). Some studies argue males may have higher levels of trust regarding internet shopping compared to females (Rodgers &

Harris, 2003; Cyr & Bonanni, 2005) and gender may affect perceptions towards online trust and therefore online loyalty (Van Slyke et al., 2002; Sanchez-Franco et al., 2009). In a similar fashion gender is shown to have a positive influence on online loyalty through online satisfaction (Sanchez-Franco et al., 2009; O'Cass & Carlson, 2010). According to Ulbrich and Stankus (2011), different online features impact online satisfaction where males prefer more information based features and females more return based features. Additionally, some studies argue gender differences affect levels of affective commitment where females may prefer to seek more emotional connections with websites compared to males (Rodgers & Harris, 2003). This could manifest through website design and online reviews (Rodgers & Harris, 2003; Zhou et al., 2007; Ulbrich et al., 2011). Similar to age, this control variable was included to account for any gender variations. This study comprises of an equal gender split in each country sample.

### **7.3.3 Income**

The literature generally supports the view higher income levels are positively associated with intent to purchase online (Miyazaki & Fernandez, 2001; Forsythe & Shi, 2003; Pavlou & Fygenson, 2006). Some studies argue consumers with higher income levels may perceive service quality and satisfaction differently to consumers on lower income with higher expectations of satisfaction leading to online loyalty (Wolfenbarger & Gilly, 2002; Ganesan-Lim et al., 2008; Sharma et al., 2012). Consumers with lower levels of income may be more price sensitive and be less inclined to show loyalty (Shankar et al., 2003). In terms of developing trust, higher income consumers may be more influenced by brand strength due to time constraints (Bart et al., 2005). The final control variable to be included in this study is income and is measured across the four country datasets using five quintile comparable categories. Conversely, other studies argue demographic factors

such as age, income and gender have no substantial effect on online loyalty and so their inclusion in this study becomes more meaningful (Caruana, 2002; Chang et al., 2005; Hernández et al., 2011).

These control variables are treated similarly to independent variables and regressed on endogenous variables they could potentially affect (ETRUST, ERS, EAC and ELOYALTY) and further covaried with each other. Three dummy categorical variables are created from the original source variables. Gender was coded with 1- female, 0- male. Age was coded along six age categories: 1(18-25), 2(25-34), 3(35-44), 4(45-54), 5(55-64) and 6(65 and over). Finally, income was coded along 5 quintile income ranges (1- lowest income quintile range, 2- second lowest income quintile range, 3- middle income quintile range, 4-second highest income quintile range and 5- highest income quintile range). See Figure 7.2a for the structural model with controls for the clothing sector and Figure 7.2b for the electrical sector.



Figure 7.2a Structural Model for Clothing sector (with controls)

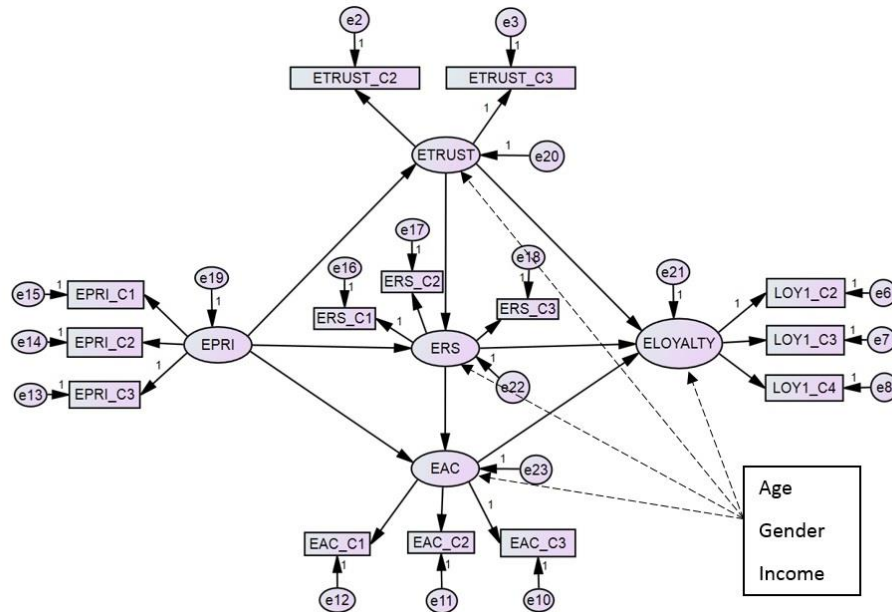
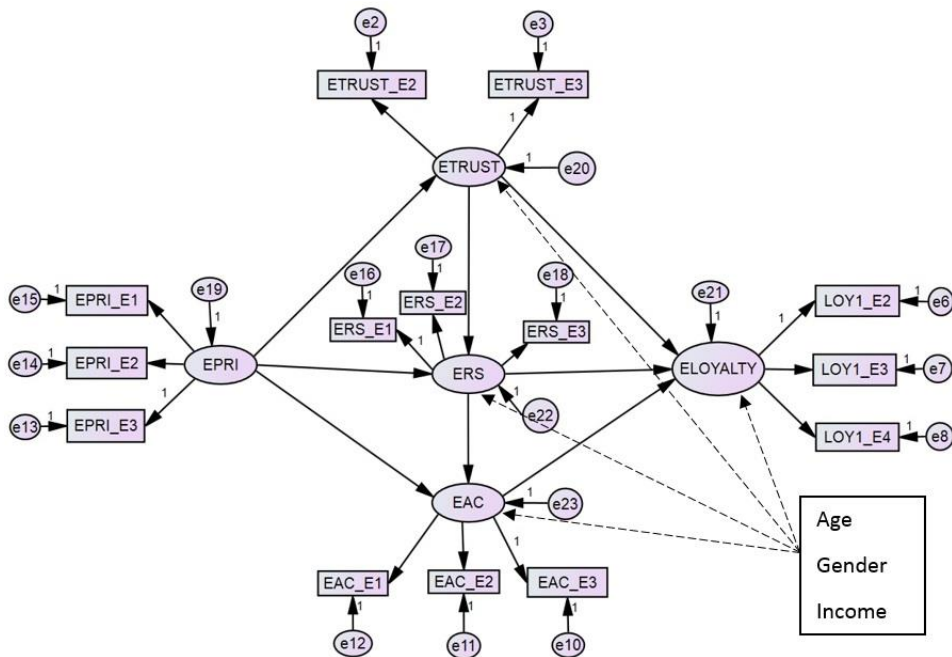


Figure 7.2b Structural Model for Electrical sector (with controls)



Latent variables: EPRI - online perceived relationship investment, ETRUST - online ongoing trust, ERS - online relationship satisfaction, EAC - online affective commitment, ELOYALTY - online loyalty

The structural model was re-examined in terms of model fit with the inclusion of control variables; Age, Gender and Income. Similarly as discussed in the previous section the clothing dataset shows a marginally better model fit compared to the electrical dataset (see Table 7.2). Examining the clothing the dataset, the normed chi square values are similar to the values without controls and around the 3.00 threshold, ranging from  $\chi^2/df = 1.597$  to  $3.411$ . While the normed chi square values are all lower in each of the country datasets it is slightly higher in the ALL dataset compared to the structural model without controls ( $\chi^2/df = 3.411$  controls,  $\chi^2/df = 3.392$  no controls). Again, this could be due to the larger sample size. The CFI and TLI values are all above 0.95 ranging from 0.961 to 0.981 and 0.961 to 0.974 respectively indicating very good model fit across all datasets. The SRMR values are all well below 0.8 ranging from 0.049 to 0.058 with RMSEA values all below acceptable levels of 0.8 (ranging from 0.049 to 0.074) both suggesting good model fit. This is further supported with good GFI values all above 0.90 ranging from 0.904 to 0.962. China, India, UK and US generally show weaker values with the inclusion of control variables with reference to CFI, TLI, GFI and SRMR values, but stronger values on RMSEA and normed chi-square values.

The electrical dataset also displays good model fit. The normed chi-square values for each country dataset are all below the recommended threshold of 3.00, with all values lower than the structural model without controls ranging from  $\chi^2/df = 1.956$  to  $2.046$ . This is also replicated with the ALL dataset with a value of  $\chi^2/df = 4.095$ (controls) compared to  $\chi^2/df = 4.604$  (no controls). Similarly, although this value is above the 3.00 threshold, support for good model fit is demonstrated with the other model fit indices falling in acceptable ranges (CFI = 0.978, TLI = 0.970, GFI = 0.955, SRMR = 0.053, RMSEA = 0.055), and could be attributable to the larger sample size in the ALL dataset (n=1010).

The CFI and TLI values are all above 0.95 ranging from 0.967 to 0.978 and 0.955 to 0.970 respectively across all datasets suggesting very good model fit again even though slightly lower values exist with the inclusion of control variables. The SRMR values are all below 0.9 ranging from 0.039 to 0.059 and while slightly higher with the inclusion of control variables, still indicate good model fit (with the exception of India). Interestingly, RMSEA values are all well below the 0.08 threshold and around the 0.06 level suggesting very good model fit. With the exception of India, RMSEA values have improved with the inclusion of control variables. The GFI values further add support to the level of good model fit with values all above 0.90 (ranging from 0.917 to 0.918).

**Table 7.2 Structural model including control variables (Clothing and Electrical datasets)**

<b>Clothing</b>												
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	$\Delta$ CFI	$\Delta$ TLI	$\Delta$ RMSEA
<b>ALL</b>	337.719	99	3.411	0.000	0.981	0.974	0.962	0.051	0.049	0.006	0.009	0.000
<b>China</b>	174.841	99	1.766	0.000	0.972	0.961	0.928	0.058	0.055	0.007	0.011	0.002
<b>India</b>	158.134	99	1.597	0.000	0.980	0.972	0.933	0.050	0.049	0.000	0.001	0.009
<b>UK</b>	235.400	9	2.378	0.000	0.961	0.947	0.904	0.056	0.074	0.007	0.010	0.006
<b>US</b>	177.406	99	1.792	0.000	0.979	0.971	0.926	0.049	0.056	0.004	0.007	0.003
<b>Electrical</b>												
	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	$\Delta$ CFI	$\Delta$ TLI	$\Delta$ RMSEA
<b>ALL</b>	405.440	99	4.095	0.000	0.978	0.970	0.955	0.053	0.055	0.004	0.006	0.005
<b>China</b>	197.893	99	1.999	0.000	0.967	0.955	0.918	0.059	0.063	0.007	0.010	0.004
<b>India</b>	202.559	99	2.046	0.000	0.967	0.955	0.918	0.043	0.065	0.002	0.001	0.022
<b>UK</b>	193.619	99	1.956	0.000	0.975	0.966	0.919	0.039	0.062	0.002	0.004	0.008
<b>US</b>	198.728	99	2.007	0.000	0.977	0.968	0.917	0.053	0.063	0.000	0.001	0.012
<b>Model fit indices with acceptable threshold levels:</b> $\chi^2$ (chi square), df(degrees of freedom), $\chi^2/df$ (normed chi-square) $\leq 5$ , (p-value) $\leq 0.05$ , CFI (comparative fit index) $\geq 0.95$ , TLI (Tucker-Lewis index) $\geq 0.95$ , GFI (goodness of fit index) $\geq 0.90$ , SRMR (standardised root mean square residual) $\leq 0.08$ , RMSEA (root mean square error of approximation) $\leq 0.08$ (Inclusion of controls)												
<b>Model comparison thresholds (with and without control variables):</b> $\Delta$ CFI $\leq 0.010$ $\Delta$ TLI $\leq 0.010$ $\Delta$ RMSEA $\leq 0.015$												

Results seem to indicate inclusion of control variables do not particularly alter model fit.

Some fit indices most notably RMSEA and normed chi-square values generally improve in both the clothing and electrical sectors, whereas SRMR, CFI, TLI and GFI values on the whole marginally worsen with the inclusion of control variables. The exception being India in the electrical sector where CFI, TLI and GFI slightly improve. The US in the

electrical sector also has a slightly better GFI value and the GFI value in India in the clothing sector marginally improves with the inclusion of control variables. This could suggest demographic factors may be more important in India and in particular the electrical sector. Overall, good model fit is demonstrated in both the clothing and electrical datasets and across all countries with the inclusion of control variables.

To further investigate the impact of the inclusion of control variables, a nested model comparison is made with the structural model with and without control variables. As before due to the non-normality of the data, differences in goodness-of-fit indices are used. As shown in Table 7.2 both delta CFI and TLI values are within acceptable thresholds of  $\leq 0.01$  (Cheung & Rensvold, 2002; Kenny, 2015) in both the clothing ( $\Delta$ CFI=0.000 to 0.007,  $\Delta$ TLI=0.001 to 0.010) and electrical datasets ( $\Delta$ CFI=0.000 to 0.007,  $\Delta$ TLI=0.001 to 0.010) and across all countries, indicating substantial differences between both structural models do not exist. Additionally delta RMSEA values are generally all within acceptable levels  $\leq 0.15$  in the clothing sector ( $\Delta$ RMSEA=0.000 to 0.009) and the electrical sector ( $\Delta$ RMSEA=0.004 to 0.012) with the exception of India in the electrical dataset with a RMSEA delta value of 0.22.

Path estimates are examined between control variables and latent variables to indicate any strong relationships. Table 7.3 shows standardised and unstandardised path estimates in both the clothing and electrical sectors. This highlights extremely weak path estimates between control variables and latent variables. Standardised path co-efficients between the control variable gender and the latent variables (ETRUST, ERS, EAC and ELOYALTY) range from -0.8 to 0.19 showing extremely weak to non-existent relationships. This is additionally seen with Age and Income control variables with the

latent variables (ETRUST, ERS, EAC and ELOYALTY) with values ranging from -0.16 to 0.16 and -0.5 to 0.09 respectively, across all datasets.

**Table 7.3 Structural model path estimates of control variables  
(Clothing and Electrical datasets)**

<b>Clothing</b>					
<b>Path</b>	<b>ALL</b>	<b>China</b>	<b>India</b>	<b>UK</b>	<b>US</b>
Age - ETRUST	0.15 (.10)	0.12(.13)	0.07(.07)	0.01(.00)	0.09(.06)
Age - ERS	0.12 (.70)	0.01(.01)	0.09(.08)	0.14(.08)	0.04(.02)
Age - EAC	0.18 (.07)	0.15(.19)	0.09(.12)	0.08(.09)	0.16(.17)
Age - ELOYALTY	-0.07(-.60)	-0.16(-.19)	-0.70(.09)	-0.04(-.04)	-0.13(-.11)
Gender - ETRUST	0.00(.01)	0.02(.05)	0.03(.06)	0.02(.04)	0.02(.04)
Gender - ERS	0.05(.09)	-0.80(-.13)	0.11(.22)	0.06(.10)	0.04(.08)
Gender - EAC	0.03(.08)	0.10(.24)	0.01(.02)	0.00(.01)	0.03(.10)
Gender - ELOYALTY	0.05(.13)	-0.80(-.17)	0.04(.09)	0.19(.50)	0.00(-.01)
Income- ETRUST	0.03(.02)	-0.20(-.20)	0.04(.03)	0.12(.09)	0.00(.00)
Income - ERS	0.01(.01)	0.09(.07)	0.01(.01)	-0.20(-.01)	0.06(.05)
Income - EAC	0.06(.07)	0.06(.06)	0.02(.02)	0.03(-.40)	0.09(-0.13)
Income- ELOYALTY	0.00(.00)	0.01(.01)	-0.10(-.01)	-0.50(-.60)	0.05(.05)
<b>Electrical</b>					
<b>Path</b>	<b>ALL</b>	<b>China</b>	<b>India</b>	<b>UK</b>	<b>US</b>
Age - ETRUST	0.17 (.11)	0.09 (.09)	-0.5 (-0.4)	0.12 (.08)	0.18 (.11)
Age - ERS	0.08 (.05)	0.04 (.04)	0.08 (.07)	0.09 (.06)	0.03 (.02)
Age - EAC	-0.12 (-.13)	0.04 (.04)	0.09 (.11)	0.02 (.02)	-0.40 (-.04)
Age - ELOYALTY	-0.11 (-.11)	-0.08 (-.09)	-0.10 (-0.8)	-0.11 (-0.8)	-0.20 (-.16)
Gender - ETRUST	-0.10 (-0.1)	-0.1 (-.03)	-0.6 (-.11)	0.00 (.01)	0.05 (.10)
Gender - ERS	0.03 (.06)	-0.05 (.05)	0.01 (.02)	0.12 (.23)	0.04 (.09)
Gender - EAC	0.03 (.09)	0.03 (.03)	0.09 (.24)	0.02 (.09)	0.02 (.08)
Gender - ELOYALTY	0.04 (.08)	0.06 (.06)	0.04 (.08)	0.01 (.02)	0.00 (.01)
Income- ETRUST	0.02 (.02)	0.08 (.10)	0.05 (.03)	0.05 (0.4)	0.00 (.00)
Income - ERS	0.01 (.01)	0.08 (.06)	0.02 (.02)	-0.20(-0.1)	0.04 (.04)
Income - EAC	0.07 (.07)	0.10 (.09)	0.08 (.08)	-0.20 (-0.3)	-0.90 (-.13)
Income- ELOYALTY	0.03 (.03)	-0.03 (-.02)	0.06 (.04)	0.00 (.00)	0.07 (.07)
Control variables: Age, Gender, Income					
Latent variables: ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty)					
Standardised path estimates, unstandardised path estimates in parentheses					

Similar results are seen in the electrical dataset with overall weak path estimates between control variables and latent variables. Standardised path co-efficients between Gender and the main constructs of ETRUST, ERS, EAC and ELOYALTY range from -0.6 to 0.12 showing weak relationships. This is additionally seen between Age and Income with the main constructs of ETRUST, ERS, EAC and ELOYALTY, with values ranging from -0.4 to 0.18 and -0.9 to 0.10 respectively, across all datasets. Results suggest the inclusion of control variables do not significantly affect model fit and do not exhibit strong path estimates with latent variables. Substantive conclusions can be drawn with confidence with the hypothesised structural model with negligible confounding effects. The onward analysis therefore, is conducted with the exclusion of control variables (Age, Gender and Income) to employ a more parsimonious model.

#### **7.4 Structural Invariance Testing (Structural Paths and Means)**

Invariance testing was conducted at the structural level examining relationships between latent variables across multiple country groups. While a number of cross national studies examine measurement invariance based on factorial invariance through the measurement model, the inclusion of invariance testing between latent variables with the structural model is less frequent (Vandenberg & Lance, 2000; Byrne & Stewart, 2006). This study further examines invariance at the structural level to address concerns in the literature of the limited application of SEM in cross cultural studies and so providing a more robust interpretation of comparisons between the country groups (Vandenberg & Lance, 2000; Byrne & Van de Vijver, 2010). The main tests used to investigate measurement invariance in this study involved configural and metric invariance as discussed in Chapter six. Establishing configural and metric invariance has been used as a prerequisite assumption for the following tests of structural invariance (Byrne & Van de Vijver 2010; Kenny,

2011). The examination of invariance at the structural model is less common and is generally used where there is a sound theoretical reasoning for its inclusion (Vandenberg & Lance, 2000; Cooper et al., 2007; Byrne & Van de Vijver, 2010; Kueh et al., 2018). Unlike invariance tests conducted at the measurement model level, non-invariance does not imply problematic issues with measurement but can indicate heterogeneity among comparison groups (Wang & Wang, 2012; Kueh et al., 2018). Structural invariance for this study is measured at two levels; invariance of structural model paths and invariance of mean structures (Byrne et al., 1989; Yoo & Donthu, 2002; Kenny, 2011). This combination has been chosen due to its suitability and relevancy to this study and is commonly used in a number of cross national studies (Byrne et al., 1989; Dumka et al., 1996; Li et al., 1996; Yoo & Donthu, 2002; Leong et al., 2003; Byrne & Stewart, 2006). These two invariance tests are based on the structural model and examine relationships between latent variables across country groups. In comparison, previous invariance tests were based on indicators reflecting the latent variable constructs with the measurement model.

#### **7.4.1 Invariance of Structural Paths**

The first test focuses on invariance of structural model parameters and essentially examines if relationships between latent variables hold across all countries and so focusses on invariance of hypothesized causal effects. The comparison of a constrained (equal regression weights) is made against an unconstrained (freely estimated regression weights) model on path relationships, using multigroup analysis (Yoo & Donthu, 2002; Byrne & Stewart, 2006; Kenny, 2011). Invariance is measured through a goodness-of-fit difference test based on the CFI and TLI delta values to account for the large sample size and issues of non-normality. Table 7.4 displays results from an unconstrained and

constrained model comparison on structural model parameters. Model 1 displays results for a freely estimated model and acts as the baseline model to which comparison are made. When examining invariance of structural paths, model fit does not significantly worsen with the addition of constraints in both the clothing and electrical sectors and so suggests structural paths are similar across countries and model comparisons can be made with confidence (model 2 vs model 1). This is further supported with CFI and TLI delta values of 0.002 and 0.000 respectively in the clothing sector and 0.003 and 0.001 in the electrical sector respectively, all below the 0.01 threshold (Cheung & Rensvold, 2002), indicating minimal differences between nested model comparisons.

**Table 7.4 Structural Invariance Testing –Clothing and Electrical model**

	$\chi^2$	df	$\chi^2/df$	p-level	CFI	TLI	RMSEA	$\Delta$ CFI	$\Delta$ TLI	Comparison
<b>Clothing</b>										
<b>Model 1 Baseline</b>	562.038	276	2.036	0.000	0.977	0.970	0.032			
<b>Model 2 Equal Paths</b>	619.157	303	2.043	0.000	0.975	0.970	0.032	0.002	0.000	Model 2 vs Model 1
<b>Model 3 Equal Factor means and Intercepts</b>	653.876	300	2.180	0.000	0.972	0.966	0.034	0.005	0.004	Model 3 vs Model 1
<b>Electrical</b>										
<b>Model 1 Baseline</b>	646.659	276	2.343	0.000	0.974	0.965	0.037			
<b>Model 2 Equal Paths</b>	705.587	303	2.329	0.000	0.971	0.966	0.036	0.003	0.001	Model 2 vs Model 1
<b>Model 3 Equal Factor means and Intercepts</b>	1228.555	369	3.329	0.000	0.939	0.965	0.048	0.035	0.000	Model 3 vs Model 1
Model 1 Baseline - model with freely estimated parameters (unconstrained model in output)      Analysis conducted with multi-group feature in AMOS 24 Model 2 Equal paths - regression weights on paths constrained to be equal, tests invariance of paths (measurement weights in output) Model 3 Equal Factor Means & Intercepts - means and intercepts of endogenous factors constrained to be 0 (structural intercepts in output) Endogenous factors, ETRUST, ERS, EAC, ELOYALTY, EPRI where intercepts set to 0										
<b>Model fit indices with acceptable threshold levels:</b> $\chi^2$ (chi square), df (degrees of freedom), $\chi^2/df$ (normed chi-square), $\leq 5$ , (p-value) $\leq 0.05$ , CFI (comparative fit index) $\geq 0.95$ , TLI (Tucker-Lewis index) $\geq 0.95$ , a $\leq 0.08$ , RMSEA (root mean square error of approximation) $\leq 0.08$ . Model comparison thresholds: $\Delta$ CFI $\leq 0.01$ $\Delta$ TLI $\leq 0.01$										

### 7.4.2 Invariance of Means and Intercepts

The final invariance test involved the comparison of means as well as intercepts for the endogenous variables. This provided an indication of homogeneity across groups based on latent mean values. In accordance with Kenny (2011), intercepts on endogenous factors (ETRUST, ERS, EAC and ELOYALTY) were constrained to be 0. The results in Table 7.4 indicate model fit worsened (Model 3 vs Model 1) in both the clothing and



electrical sectors suggesting the additional constraints on means and intercepts highlight differences in groups based on factor means and intercepts. The CFI delta values in the clothing and electrical sectors are 0.005 and 0.035 respectively and the TLI values in the clothing and electrical sectors are 0.004 and 0.000 respectively. While most values are within acceptable thresholds, the electrical dataset exhibits a CFI delta value of 0.035 (above the 0.01 threshold). Structural invariance of factor means and intercepts has been found to generally hold across the clothing dataset and not the electrical dataset. However, this is not a problematic issue. It merely indicates differences across the groups which is to be expected and are further explored more fully in the following chapters.

### **7.5 Bootstrapping of Structural Model**

Bootstrapping procedures are employed at the structural model stage to further examine the robustness of results derived from ML estimation compared to nonparametric bootstrapping results. This is conducted in a similar manner as discussed in Chapter six, where bootstrapping procedures were applied to the respecified measurement model. Both naïve and Bollen-Stine procedures for bootstrapping are employed. Naïve bootstrapping is employed to compare differences in standard errors and the Bollen-Stine procedure to examine adjusted p-values and model fit. Conducting bootstrapping at the structural model stage additionally reinforced the viability of path relationships and further validated the adoption of ML estimation with non-normal data. Thus, providing further support for the robustness and accuracy of results obtained. Naïve bootstrapping results are shown in Table 7.5a, 7.5b, 7.6a and 7.6b. To present the data more coherently, Tables 7.5a and 7.5b represent the clothing dataset and Tables 7.6a and 7.6b the electrical dataset. These results are based on 2000 bootstrap samples with bias-corrected intervals at 90% using the bootstrap ML method in AMOS 24. As in previous tables standard errors

derived using ML estimation ( $SE_{ML}$ ) and nonparametric bootstrapping ( $SE_{BS}$ ) with the bias values are shown. Lower and upper boundaries of bias corrected intervals are displayed with related p-values.

### **7.5.1 Naïve Bootstrapping Clothing Dataset**

The clothing dataset contains predominantly low bias values where results from  $SE_{ML}$  and  $SE_{BS}$  are relatively similar, as shown in Table 7.5a and Table 7.5b. These results from Naïve bootstrapping indicate standard errors produced from ML estimation do not significantly deviate from bootstrapped standard errors and add support for the robustness of ML estimation. The ALL dataset contains low bias values ranging from (-0.003 to 0.002) Table 7.5a. These overall low bias values are additionally reflected in the UK dataset with values ranging from (-0.003 to 0.005) Table 7.5b. Although marginally higher all values in China and the UK fall within a lower range compared to the other countries and are all equal to or below 0.05.

Bias values in China, India and the US are similar in that the majority fall in the lower range, with a few exceptions that are slightly higher but still acceptable. Bias values in China, India and the US range from (-0.006 to 0.012), (-0.007 to 0.012) and (-0.004 to 0.007) respectively. The largest bias values indicate a difference between bootstrapping standard errors and maximum likelihood standard errors between certain path relationships. As shown in Table 7.5a the largest bias value from the China dataset is 0.012 and relates to the path between ERS and EAC. Within the India dataset the two largest bias values are 0.012 (path between ETRUST and ERS) and 0.012 (path between ETRUST and ELOYALTY). Finally the US dataset (Table 7.5b) has a highest bias value of 0.007 relating to the path between ERS and ELOYALTY. Although these bias values are slightly higher than the majority of the bias values in each of the datasets, these values

are all well below 0.05 and so exhibit relatively low levels of bias and provide confidence in the results obtained validating the inclusion of ML estimation.

Examination of bias corrected intervals provides slightly different results compared to the CFA model. While the previous use of bias corrected confidence intervals examined the faithfulness of path estimates, the use of bias corrected confidence intervals in the structural model provides an indication of weaker or non-existent relationships. The ALL dataset as shown in Table 7.5a, does not contain zero in the lower and upper confidence levels as expected and all p values are significant ranging from 0.001 to 0.006 and so well below the 0.05 significance level. This provides support for rejecting the null hypothesis (parameter estimates for the two paths are zero) and so demonstrates support for the model across all path estimates. However, different results are obtained upon inspection of each country dataset and specific weaker or non-existent relationships are more clearly highlighted. Examining Table 7.5a, zero appears in confidence intervals for the path relationship between ELOYALTY and ETRUST in both the China and India datasets and ERS and ELOYALTY in the India dataset. The China dataset exhibits p-values of 0.329 and the India dataset shows p-values of 0.551 (ELOYALTY and ETRUST) suggesting non-significant relationships. Additionally, in the India dataset shows similar non-significant p-values of 0.463 (ERS and ELOYALTY). Examining Table 7.5b the UK and US demonstrate slightly different patterns with only one path relationship highlighted as non-significant in each dataset. The UK dataset contains a zero in confidence intervals related to the ELOYALTY and ERS path with a p-value of 0.621 indicating a non-significant relationship. The US dataset contains a zero in confidence intervals related to ELOYALTY and ETRUST with a p-value of 0.8431 indicating a non-significant path relationship.

Table 7.5a Naïve Bootstrapping (Clothing Dataset - All, China, India)

			All						China						India					
			Standard Error (S.E)			BC Confidence			Standard Error (S.E)			BC Confidence			Standard Error (S.E)			BC Confidence		
Indicator	Construct		S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P
ETRUST	<--- EPRI		0.024	0.032	0.000	0.346	0.452	0.001	0.065	0.086	-0.001	0.561	0.848	0.001	0.055	0.086	0.003	0.352	0.634	0.001
ERS	<--- EPRI		0.020	0.025	0.000	0.134	0.219	0.001	0.060	0.081	-0.001	0.081	0.349	0.009	0.049	0.080	-0.004	0.065	0.318	0.011
ERS	<--- ETRUST		0.028	0.037	0.001	0.530	0.650	0.001	0.064	0.075	0.002	0.452	0.696	0.001	0.067	0.117	0.012	0.510	0.889	0.001
EAC	<--- EPRI		0.045	0.053	0.001	0.609	0.785	0.001	0.106	0.145	-0.006	0.422	0.898	0.001	0.074	0.108	0.002	0.291	0.643	0.001
EAC	<--- ERS		0.061	0.069	-0.003	0.238	0.470	0.001	0.116	0.174	0.012	0.126	0.695	0.017	0.093	0.148	0.005	0.523	1.002	0.001
ELOYALTY	<--- ETRUST		0.056	0.076	0.002	0.090	0.344	0.006	0.129	0.160	0.001	-0.107	0.410	0.329	0.123	0.197	0.012	-0.187	0.402	0.551
ELOYALTY	<--- ERS		0.064	0.085	0.001	0.244	0.523	0.001	0.150	0.196	0.007	0.007	0.655	0.090	0.159	0.279	-0.007	-0.245	0.658	0.463
ELOYALTY	<--- EAC		0.025	0.032	-0.001	0.263	0.372	0.001	0.076	0.101	-0.002	0.289	0.630	0.001	0.089	0.149	-0.001	0.336	0.823	0.001
ETRUST_C2	<--- ETRUST		0.023	0.029	0.001	0.965	1.062	0.001	0.049	0.055	0.002	0.906	1.085	0.001	0.054	0.070	0.004	0.855	1.090	0.001
ETRUST_C3	<--- ETRUST*																			
LOY1_C2	<--- ELOYALTY*																			
LOY1_C3	<--- ELOYALTY		0.030	0.032	0.001	0.948	1.054	0.001	0.072	0.093	0.000	0.814	1.116	0.001	0.055	0.059	0.002	0.813	1.006	0.001
LOY1_C4	<--- ELOYALTY		0.029	0.039	0.002	0.786	0.914	0.001	0.076	0.091	-0.002	0.801	1.106	0.001	0.056	0.065	0.001	0.762	0.976	0.001
EAC_C3	<--- EAC*																			
EAC_C2	<--- EAC		0.021	0.018	0.000	0.956	1.017	0.001	0.061	0.058	0.005	0.855	1.043	0.002	0.055	0.048	0.002	0.910	1.072	0.001
EAC_C1	<--- EAC		0.024	0.020	0.000	0.924	0.990	0.001	0.064	0.057	0.000	0.842	1.033	0.001	0.067	0.064	0.001	0.911	1.118	0.001
EPRI_C3	<--- EPRI*																			
EPRI_C2	<--- EPRI		0.024	0.026	0.001	0.995	1.080	0.001	0.065	0.061	0.002	0.987	1.186	0.001	0.054	0.065	0.006	0.949	1.159	0.001
EPRI_C1	<--- EPRI		0.026	0.032	0.001	0.961	1.067	0.001	0.065	0.066	-0.001	1.011	1.224	0.001	0.057	0.091	0.006	0.701	0.999	0.001
ERS_C1	<--- ERS*																			
ERS_C2	<--- ERS		0.025	0.027	0.001	0.993	1.083	0.001	0.058	0.074	0.003	0.946	1.185	0.001	0.054	0.070	0.003	0.938	1.168	0.001
ERS_C3	<--- ERS		0.026	0.031	-0.001	0.953	1.056	0.001	0.055	0.060	0.001	0.950	1.147	0.001	0.054	0.072	0.001	0.972	1.207	0.001
SE <sub>ML</sub> - Standard Error Estimates under Maximum Likelihood Estimation										SE <sub>BS</sub> Standard Error Bootstrap Estimates										
Bias - Difference between original SE <sub>ML</sub> estimate and Bootstrap mean estimate										BC Confidence - Bias corrected confidence intervals at 90%, lower and upper CI values										
* Values not displayed due to parameter constraints (regression weight =1) for model identification purposes										Latent variables: ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online perceived relationship investment)										
Bootstrapping conducted under MLBootstrap, 2000 number of bootstrap samples in AMOS 24																				

### Table 7.5b Naïve Bootstrapping (Clothing Dataset – UK, US)

UK								US						
		Standard Error (S.E)		BC Confidence				Standard Error (S.E)			BC Confidence			
Indicator	Construct	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	
ETRUST	<--- EPRI	0.040	0.045	0.001	0.185	0.334	0.001	0.047	0.063	0.004	0.350	0.560	0.001	
ERS	<--- EPRI	0.032	0.038	0.001	0.104	0.229	0.001	0.041	0.046	0.001	0.169	0.323	0.001	
ERS	<--- ETRUST	0.052	0.067	0.003	0.409	0.621	0.001	0.052	0.063	0.001	0.437	0.642	0.001	
EAC	<--- EPRI	0.077	0.086	0.004	0.491	0.767	0.001	0.105	0.111	0.000	0.351	0.718	0.001	
EAC	<--- ERS	0.128	0.126	-0.003	0.103	0.518	0.010	0.139	0.136	-0.004	0.241	0.698	0.001	
ELOYALTY	<--- ETRUST	0.106	0.132	-0.001	0.320	0.756	0.001	0.102	0.156	0.001	-0.292	0.218	0.843	
ELOYALTY	<--- ERS	0.119	0.151	-0.003	-0.175	0.321	0.621	0.122	0.170	0.007	0.444	0.998	0.001	
ELOYALTY	<--- EAC	0.049	0.060	0.000	0.227	0.424	0.001	0.044	0.056	-0.005	0.187	0.373	0.000	
ETRUST_C2	<--- ETRUST	0.047	0.056	0.001	1.025	1.214	0.001	0.036	0.049	0.001	0.943	1.102	0.001	
ETRUST_C3	<--- ETRUST *													
LOY1_C2	<--- ELOYALTY *													
LOY1_C3	<--- ELOYALTY	0.050	0.052	0.005	0.862	1.032	0.002	0.058	0.057	0.005	1.048	1.236	0.001	
LOY1_C4	<--- ELOYALTY	0.048	0.072	0.004	0.592	0.825	0.002	0.052	0.071	0.006	0.783	1.015	0.002	
EAC_C3	<--- EAC *													
EAC_C2	<--- EAC	0.037	0.033	0.001	0.921	1.031	0.001	0.033	0.029	0.001	0.965	1.058	0.001	
EAC_C1	<--- EAC	0.038	0.032	0.000	0.835	0.941	0.001	0.040	0.035	0.000	0.885	1.002	0.001	
EPRI_C3	<--- EPRI *													
EPRI_C2	<--- EPRI	0.041	0.052	0.001	0.986	1.165	0.000	0.045	0.043	0.002	0.912	1.053	0.002	
EPRI_C1	<--- EPRI	0.045	0.058	0.002	0.993	1.185	0.001	0.052	0.051	0.004	0.912	1.077	0.001	
ERS_C1	<--- ERS *													
ERS_C2	<--- ERS	0.042	0.048	0.001	1.047	1.207	0.001	0.040	0.043	0.000	0.926	1.068	0.001	
ERS_C3	<--- ERS	0.054	0.071	0.000	0.844	1.074	0.001	0.044	0.051	0.000	0.874	1.041	0.001	

SE<sub>ML</sub> - Standard Error Estimates under Maximum Likelihood Estimation  
Bias - Difference between original SE<sub>ML</sub> estimate and Bootstrap mean estimate  
\* Values not displayed due to parameter constraints (regression weight =1) for model identification purposes

SE<sub>BS</sub> Standard Error Bootstrap Estimates  
BC Confidence - Bias corrected confidence intervals at 90%, lower and upper CI values  
Latent variables: ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online perceived relationship investment)

Bootstrapping conducted under MLBootstrap, 2000 number of bootstrap samples in AMOS 24

### **7.5.2 Naïve Bootstrapping Electrical Dataset**

The electrical dataset is inspected in a similar manner where both bias values and bias corrected confidence intervals are examined. Similarly to the clothing ALL dataset, the ALL electrical dataset (see Table 7.6a and Table 7.6b) demonstrates very low bias values ranging from (-0.004 to 0.002) suggesting again the robustness of the ML estimation technique. This is further supported by very low bias values in the UK dataset ranging from (-0.002 to 0.005).

Bias values are similarly low across the remaining three countries with some slightly higher values seen in Table 7.6a and 7.6b. The China dataset contained bias values ranging from (-0.016 to 0.019), with the two largest positive values relating to path relationships between ERS and EAC (bias value of 0.018) and ERS and ELOYALTY (bias value 0.019). Additionally the largest negative bias value related to the path relationship between EPRI and EAC (bias value -0.016). The India dataset also contains fairly low levels of bias values ranging from (-0.018 to 0.028) with the largest values at each end of the spectrum relating to different path relationships between ELOYALTY and ETRUST (bias value 0.028) and ELOYALTY and ERS (bias value of -0.018). Finally the US dataset displays bias values ranging from (-0.17 to 0.012) and similarly to India shows the largest values at both ends of the spectrum. The two main paths included EPRI to EAC (bias value -0.017) and ERS to EAC (bias value 0.012). Similarly to results in the clothing dataset, even the larger bias values all fall below generally accepted threshold levels of 0.05 and additionally provide support for the robustness of the ML estimation technique in the electrical dataset.

**Table 7.6a Naïve Bootstrapping (Electrical Dataset - All, China, India)**

All		China						India											
Indicator	Construct	Standard Error (S.E)		BC Confidence		P	Standard Error (S.E)		BC Confidence		P	Standard Error (S.E)		BC Confidence		P			
		S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower		Upper	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias		Lower	Upper	S.E <sub>ML</sub>	S.E <sub>BS</sub>		Bias	Lower	Upper
ETRUST	<--- EPRI	0.024	0.034	0.000	0.386	0.496	0.001	0.062	0.083	0.004	0.544	0.819	0.001	0.049	0.086	0.005	0.408	0.686	0.001
ERS	<--- EPRI	0.021	0.032	0.000	0.206	0.310	0.001	0.053	0.092	0.004	0.213	0.508	0.001	0.062	0.129	0.000	0.080	0.462	0.055
ERS	<--- ETRUST	0.028	0.042	0.001	0.511	0.646	0.001	0.053	0.086	-0.003	0.327	0.607	0.001	0.085	0.177	0.002	0.489	1.027	0.001
EAC	<--- EPRI	0.051	0.056	-0.001	0.633	0.816	0.001	0.094	0.135	-0.016	0.356	0.782	0.003	0.099	0.101	-0.005	0.226	0.559	0.004
EAC	<--- ERS	0.064	0.071	-0.001	0.102	0.340	0.002	0.103	0.158	0.018	0.103	0.599	0.013	0.110	0.116	0.006	0.291	0.668	0.001
ELOYALTY	<--- ETRUST	0.044	0.059	0.004	0.158	0.350	0.002	0.093	0.151	-0.006	-0.164	0.270	0.638	0.098	0.387	0.028	-0.048	0.509	0.189
ELOYALTY	<--- ERS	0.049	0.063	-0.004	0.423	0.630	0.001	0.127	0.214	0.019	0.049	0.640	0.046	0.091	0.315	-0.018	0.260	0.767	0.020
ELOYALTY	<--- EAC	0.017	0.023	0.000	0.103	0.181	0.001	0.079	0.144	0.001	0.272	0.753	0.001	0.039	0.051	-0.001	0.048	0.212	0.008
ETRUST_E2	<--- ETRUST	0.023	0.029	0.001	0.936	1.034	0.001	0.043	0.045	0.001	0.819	0.965	0.001	0.058	0.092	-0.003	0.847	1.156	0.001
ETRUST_E3	<--- ETRUST*																		
LOY1_E2	<--- ELOYALTY*																		
LOY1_E3	<--- ELOYALTY	0.028	0.028	0.002	0.992	1.083	0.002	0.069	0.077	0.000	0.996	1.246	0.001	0.068	0.093	0.010	1.052	1.348	0.001
LOY1_E4	<--- ELOYALTY	0.029	0.035	0.002	0.908	1.019	0.001	0.071	0.083	-0.001	0.874	1.146	0.001	0.069	0.100	0.009	0.987	1.314	0.001
EAC_E3	<--- EAC*																		
EAC_E2	<--- EAC	0.018	0.018	0.000	0.978	1.038	0.001	0.071	0.074	0.006	1.005	1.252	0.001	0.047	0.056	0.002	0.934	1.116	0.001
EAC_E1	<--- EAC	0.021	0.021	0.000	0.951	1.018	0.001	0.072	0.071	0.004	0.952	1.190	0.001	0.063	0.073	-0.001	0.834	1.071	0.001
EPRI_E3	<--- EPRI*																		
EPRI_E2	<--- EPRI	0.021	0.026	0.001	0.930	1.015	0.001	0.056	0.073	0.001	0.848	1.082	0.001	0.046	0.056	0.002	0.797	0.985	0.001
EPRI_E1	<--- EPRI	0.023	0.029	0.000	0.937	1.033	0.001	0.058	0.063	0.003	1.008	1.215	0.001	0.049	0.057	0.001	0.715	0.899	0.001
ERS_E1	<--- ERS*																		
ERS_E2	<--- ERS	0.022	0.027	0.000	0.993	1.083	0.001	0.052	0.064	0.004	1.009	1.217	0.001	0.045	0.066	0.006	0.912	1.129	0.001
ERS_E3	<--- ERS	0.023	0.031	0.000	0.886	0.986	0.001	0.050	0.058	0.004	0.788	0.979	0.001	0.042	0.062	0.007	0.819	1.021	0.001
SE <sub>ML</sub> - Standard Error Estimates under Maximum Likelihood Estimation								SE <sub>BS</sub> Standard Error Bootstrap Estimates											
Bias - Difference between original SE <sub>ML</sub> estimate and Bootstrap mean estimate								BC Confidence - Bias corrected confidence intervals at 90%, lower and upper CI values											
* Values not displayed due to parameter constraints (regression weight =1) for model identification purposes								Latent variables: ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online relationship investment)											
Bootstrapping conducted under MLBootstrap, 2000 number of bootstrap samples in AMOS 24																			

Table 7.6b Naïve Bootstrapping (Electrical Dataset –UK, US)

		UK							US						
		Standard Error (S.E)			BC Confidence				Standard Error (S.E)			BC Confidence			
Indicator	Construct	S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P		S.E <sub>ML</sub>	S.E <sub>BS</sub>	Bias	Lower	Upper	P	
ETRUST	<--- EPRI	0.042	0.051	-0.002	0.238	0.407	0.001		0.052	0.057	0.000	0.465	0.651	0.001	
ERS	<--- EPRI	0.034	0.043	0.000	0.111	0.253	0.001		0.052	0.072	-0.005	0.273	0.513	0.001	
ERS	<--- ETRUST	0.054	0.067	-0.001	0.504	0.720	0.001		0.057	0.095	0.004	0.283	0.594	0.001	
EAC	<--- EPRI	0.081	0.090	0.004	0.445	0.743	0.002		0.137	0.144	-0.017	0.476	0.966	0.000	
EAC	<--- ERS	0.122	0.134	-0.002	0.176	0.611	0.003		0.151	0.162	0.012	0.078	0.616	0.036	
ELOYALTY	<--- ETRUST	0.086	0.104	-0.002	0.148	0.502	0.002		0.079	0.109	0.008	0.153	0.504	0.002	
ELOYALTY	<--- ERS	0.100	0.124	0.005	0.287	0.687	0.001		0.090	0.108	-0.005	0.395	0.751	0.001	
ELOYALTY	<--- EAC	0.034	0.042	0.000	0.076	0.213	0.001		0.034	0.043	-0.003	0.053	0.197	0.001	
ETRUST_E2	<--- ETRUST	0.044	0.057	0.003	0.956	1.145	0.001		0.030	0.038	0.000	0.925	1.052	0.001	
ETRUST_E3	<--- ETRUST*														
LOY1_E2	<--- ELOYALTY*														
LOY1_E3	<--- ELOYALTY	0.055	0.050	0.001	0.890	1.052	0.001		0.038	0.033	0.002	0.906	1.017	0.002	
LOY1_E4	<--- ELOYALTY	0.056	0.058	0.002	0.874	1.066	0.001		0.041	0.055	0.004	0.732	0.916	0.001	
EAC_E3	<--- EAC*														
EAC_E2	<--- EAC	0.033	0.031	-0.001	0.962	1.066	0.001		0.026	0.026	0.001	0.944	1.032	0.001	
EAC_E1	<--- EAC	0.035	0.030	0.000	0.930	1.031	0.001		0.031	0.027	0.002	0.944	1.035	0.002	
EPRI_E3	<--- EPRI*														
EPRI_E2	<--- EPRI	0.034	0.046	0.001	0.936	1.084	0.001		0.046	0.047	0.001	0.926	1.081	0.001	
EPRI_E1	<--- EPRI	0.041	0.050	0.000	0.923	1.089	0.001		0.047	0.067	0.005	0.856	1.071	0.001	
ERS_E1	<--- ERS*														
ERS_E2	<--- ERS	0.045	0.047	0.000	0.967	1.121	0.001		0.032	0.048	0.003	0.924	1.085	0.001	
ERS_E3	<--- ERS	0.050	0.067	0.004	0.854	1.080	0.001		0.039	0.057	0.004	0.869	1.061	0.001	

SE<sub>ML</sub> - Standard Error Estimates under Maximum Likelihood EstimationBias - Difference between original SE<sub>ML</sub> estimate and Bootstrap mean estimate

\* Values not displayed due to parameter constraints (regression weight =1) for model identification purposes

Bootstrapping conducted under MLBootstrap, 2000 number of bootstrap samples in AMOS 24

SE<sub>BS</sub> Standard Error Bootstrap Estimates

BC Confidence - Bias corrected confidence intervals at 90%, lower and upper CI values

Latent variables: ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online relationship investment)



Bias corrected confidence interval levels were again examined in the same manner and highlighted possible weak or non-significant relationships. Examining Table 7.6a, the ALL electrical dataset does not contain any zero values between the lower and upper confidence intervals with significant p-values ranging from (0.001 to 0.002), suggesting strong support for the model and highlighting all relationships as significant. Interestingly, this is additionally demonstrated in the UK dataset (see Table 7.6b), where all bias corrected interval levels are in positive ranges (no zero values) with all significant p-values ranging from (0.001 to 0.003) and also in the US dataset with no zero values between lower and upper confidence levels and p-values ranging from (0.001 to 0.36). This suggests strong support for the model and all path relationships in the UK and US dataset. The remaining two country datasets highlight weak or non-significant relationships. The dataset in China contains a zero in the lower and upper confidence interval levels with a p-value of 0.638, indicating a non-significant relationship between ETRUST and ELOYALTY. This is also emulated in the India dataset where the relationship between ELOYALTY and ETRUST is also shown to be non-significant with a zero in the lower and upper confidence intervals alongside a non-significant p-value of 0.189. The electrical dataset seems to provide overall stronger model support for all path relationships, with the UK and the US showing the stronger support in comparison to the clothing dataset.

### **7.5.3 Bollen-Stine Bootstrapping**

The Bollen-Stine bootstrap method is applied to examine model fit and conducted at the structural model level. As shown in Table 7.7 Bollen-Stine p-values are mixed with some results showing good model fit ( $p \geq 0.05$ ) and others poor to no model fit ( $p < 0.05$ ). This is reflective of results obtained in the previous chapter and expected due to the sensitivity

of the Bollen-Stine p-value to sample size. The ALL dataset in both the clothing and electrical datasets shows a value of 0.000 suggesting outright model rejection and acceptance of the null hypothesis. Most values on an individual country basis suggest poor model fit with the Bollen-Stine values slightly above 0.000 but still below 0.05. Bollen-Stine p-values range from 0.015 to 0.083 in the clothing sector. India is the only dataset that shows acceptance of the model with a p-value larger than 0.05 of 0.083. The electrical sector shows similar model fit with Bollen-Stine p-values ranging from 0.000 to 0.050. The China dataset is the only dataset to show acceptance of the model with a Bollen-Stine p-value of 0.05. As discussed previously, reliance on the Bollen-Stine p-value is limiting and an examination of a range of goodness-of-fit indices provides a better indication of model fit (Byrne, 2016; Hair et al., 2018). Examining various model fit indices in Table 7.7 both the clothing and electrical datasets across all countries demonstrate very good model fit. These values are the same discussed in Table 7.1 and presented here for convenience. To recap, the clothing dataset shows good model fit with values across all datasets falling within acceptable levels, values for the normed chi-square range from 1.800 to 3.392, CFI values are all well above 0.95 showing very good model fit (0.968 to 0.987), TLI values are all above 0.95 showing good model fit (0.957 to 0.983), GFI values are all over 0.90 (0.910 to 0.968) showing very good model fit, SRMR values are well below 0.08 (0.036 to 0.059) suggesting very good model fit and RMSEA values are equal or below 0.08 showing good model fit (0.049 to 0.080).

This is further echoed in the results from the electrical dataset. The normed chi-square figures are in the range 2.122 to 4.604 with a slightly higher value in the ALL dataset of 4.604 but still acceptable given the large sample size. The CFI and TLI values are all above 0.95 indicating very good model fit (0.965 to 0.982 and 0.954 to 0.976)

respectively). This is further supported by SRMR values all below 0.08 (0.040 to 0.048) and RMSEA values either equal to or below 0.08 (0.060 to 0.080) both indicating good model fit. Overall there is good evidence to suggest good model fit across both sectors and all countries with the structural model even though Bollen-Stine p-values may be weak.

**Table 7.7 Bollen-Stine Bootstrapping**

<b>Clothing</b>										
	$\chi^2$	$df$	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	Bollen-Stine (p-value)
<b>All</b>	234.024	69	3.392	0.000	0.987	0.983	0.968	0.038	0.049	0.000
<b>China</b>	124.189	69	1.800	0.000	0.979	0.972	0.936	0.004	0.057	0.083
<b>India</b>	127.231	69	1.844	0.000	0.980	0.973	0.933	0.043	0.058	0.148
<b>UK</b>	181.003	69	2.623	0.000	0.968	0.957	0.910	0.059	0.080	0.001
<b>US</b>	129.617	69	1.879	0.000	0.983	0.978	0.933	0.054	0.059	0.015

<b>Electrical</b>										
	$\chi^2$	$df$	$\chi^2/df$	p-level	CFI	TLI	GFI	SRMR	RMSEA	Bollen-Stine (p-value)
<b>All</b>	317.684	69	4.604	0.000	0.982	0.976	0.958	0.041	0.060	0.000
<b>China</b>	146.420	69	2.122	0.000	0.974	0.965	0.926	0.040	0.067	0.048
<b>India</b>	178.429	69	2.586	0.000	0.965	0.954	0.913	0.043	0.080	0.019
<b>UK</b>	153.403	69	2.223	0.000	0.977	0.970	0.921	0.045	0.070	0.015
<b>US</b>	168.406	69	2.441	0.000	0.977	0.969	0.914	0.048	0.075	0.001

**Model fit indices** with acceptable threshold levels:  $\chi^2$  (chi square),  $df$  (degrees of freedom),  $\chi^2/df$  (normed chi-square)  $\leq 5$ , (p-value)  $\leq 0.05$ , CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.95$ , GFI (goodness of fit index)  $\geq 0.90$ , SRMR (standardised root mean square residual)  $\leq 0.08$ , RMSEA (root mean square error of approximation)  $\leq 0.08$ )

ML Estimation Bootstrapping with 2000 samples in AMOS 24, Bollen-Stine p-value  $< 0.05$ , model rejected

## 7.6 Structural Model Path estimates

The previous section established the robustness of the ML estimation technique given the non-normality of the sample data through the comparison of bootstrapping values (both naïve and Bollen-Stine). This section now examines path estimates and the validity of the proposed model. The clothing and electrical datasets are examined alongside individual country datasets. The proposed model can therefore be compared across countries and sectors, further examining the hypotheses proposed previously.

Path estimates are provided in Table 7.8 for the clothing and electrical dataset showing both the standardised and unstandardized values and form the basis of the subsequent discussion. Formal hypotheses results are shown in Table 7.8 which additionally states acceptance and rejection of hypotheses H1 to H8. Acceptance is based on positive and significant standardised path estimates where  $p \leq 0.05$ . Rejection is based on insignificant p-values of  $p \geq 0.05$ .

***H1: EPRI will have a positive effect on ongoing ETRUST***

The path relationship between EPRI and ETRUST is positive and significant in all countries and sectors. Standardised path estimates are the strongest in the clothing dataset with China exhibiting a value of (0.70), followed by India (0.58), US (0.57) and UK (0.40). Results in the Electrical dataset exhibit a slightly different pattern. India displays the strongest standardised path estimate (0.69), closely followed by China (0.67), US (0.61) and the UK (0.46). The ALL dataset displays similar standardised path estimates in both the clothing (0.52) and electrical datasets (0.55) with positive and significant results. H1 is therefore accepted in all countries and sectors alongside the ALL dataset.

Table 7.8 Structural Path Estimates

Clothing											
Hyp	Path	ALL		China		India		UK		US	
H1	EPRI - ETRUST	0.52 (.40)	<i>Accepted</i>	0.70 (.71)	<i>Accepted</i>	0.58 (.48)	<i>Accepted</i>	0.40 (.25)	<i>Accepted</i>	0.57 (.45)	<i>Accepted</i>
H2	EPRI - ERS	0.25 (.18)	<i>Accepted</i>	0.23 (.20)	<i>Accepted</i>	0.23 (.19)	<i>Accepted</i>	0.29 (.17)	<i>Accepted</i>	0.33 (.24)	<i>Accepted</i>
H3	EPRI - EAC	0.54 (.69)	<i>Accepted</i>	0.54 (.67)	<i>Accepted</i>	0.40 (.47)	<i>Accepted</i>	0.54 (.63)	<i>Accepted</i>	0.39 (.53)	<i>Accepted</i>
H4	ETRUST - ELOYALTY	0.17 (.22)	<i>Accepted</i>	<b>0.14 (.15)</b>	<i>Rejected</i>	<b>0.08 (.10)</b>	<i>Rejected</i>	0.37 (.53)	<i>Accepted</i>	<b>-0.02 (-.03)</b>	<i>Rejected</i>
H5	ERS - ELOYALTY	0.28 (.39)	<i>Accepted</i>	0.24 (.31)	<i>Accepted</i>	<b>0.16 (.20)</b>	<i>Rejected</i>	<b>0.05 (.07)</b>	<i>Rejected</i>	0.50 (.68)	<i>Accepted</i>
H6	EAC - ELOYALTY	0.41 (.32)	<i>Accepted</i>	0.50 (.45)	<i>Accepted</i>	0.62 (.56)	<i>Accepted</i>	0.41 (.32)	<i>Accepted</i>	0.36 (.27)	<i>Accepted</i>
H7	ETRUST - ERS	0.64 (.59)	<i>Accepted</i>	0.67 (.57)	<i>Accepted</i>	0.67 (.67)	<i>Accepted</i>	0.55 (.51)	<i>Accepted</i>	0.57 (.54)	<i>Accepted</i>
H8	ERS - EAC	0.20 (.35)	<i>Accepted</i>	0.27 (.39)	<i>Accepted</i>	0.53 (.76)	<i>Accepted</i>	0.15 (.29)	<i>Accepted</i>	0.26 (.47)	<i>Accepted</i>
Electrical											
Hyp	Path	ALL		China		India		UK		US	
H1	EPRI - ETRUST	0.55 (.44)	<i>Accepted</i>	0.67 (.68)	<i>Accepted</i>	0.69 (.54)	<i>Accepted</i>	0.46 (.32)	<i>Accepted</i>	0.61 (.55)	<i>Accepted</i>
H2	EPRI - ERS	0.33 (.26)	<i>Accepted</i>	0.41 (.35)	<i>Accepted</i>	0.31 (.28)	<i>Accepted</i>	0.27 (.18)	<i>Accepted</i>	0.43 (.38)	<i>Accepted</i>
H3	EPRI - EAC	0.54 (.72)	<i>Accepted</i>	0.60 (.61)	<i>Accepted</i>	0.37 (.43)	<i>Accepted</i>	0.49 (.60)	<i>Accepted</i>	0.42 (.70)	<i>Accepted</i>
H4	ETRUST - ELOYALTY	0.24 (.26)	<i>Accepted</i>	<b>0.06 (.06)</b>	<i>Rejected</i>	0.22 (.23)	<i>Accepted</i>	0.28 (.31)	<i>Accepted</i>	0.27 (.33)	<i>Accepted</i>
H5	ERS - ELOYALTY	0.47 (.52)	<i>Accepted</i>	0.28 (.31)	<i>Accepted</i>	0.55 (.49)	<i>Accepted</i>	0.43 (.49)	<i>Accepted</i>	0.45 (.56)	<i>Accepted</i>
H6	EAC - ELOYALTY	0.22 (.14)	<i>Accepted</i>	0.54 (.51)	<i>Accepted</i>	0.17 (.12)	<i>Accepted</i>	0.22 (.14)	<i>Accepted</i>	0.17 (.12)	<i>Accepted</i>
H7	ETRUST - ERS	0.59 (.58)	<i>Accepted</i>	0.55 (.47)	<i>Accepted</i>	0.61 (.71)	<i>Accepted</i>	0.63 (.61)	<i>Accepted</i>	0.44 (.43)	<i>Accepted</i>
H8	ERS - EAC	0.13 (.22)	<i>Accepted</i>	0.26 (.30)	<i>Accepted</i>	0.36 (.46)	<i>Accepted</i>	0.20 (.37)	<i>Accepted</i>	0.19 (.36)	<i>Accepted</i>

Latent variables: ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online relationship investment)

Hyp (Hypotheses) H1 - H8 Accepted 95% significance level  $p \leq 0.05$

Standardised path estimates, unstandardised path estimates in parentheses

***H2: EPRI will have positive effect on ERS.***

The standardised path estimates between EPRI and ERS are slightly lower but still positive and significant across all countries and sectors. The electrical dataset displays slightly stronger standardised path estimates compared to the clothing dataset. Examining the electrical dataset, US exhibits the strongest standardised path estimates (0.43), followed by China (0.41), the ALL dataset (0.33), India (0.31) and UK (0.27). The clothing dataset has the strongest standardised path estimates in the US (0.33), followed by UK (0.29), ALL (0.25) and China and India with the same standardised path estimate (0.23). H2 is therefore accepted in all countries and sectors as well as both ALL datasets.

***H3: EPRI will have a positive effect on EAC.***

The path between EPRI and EAC is positive and significant across all datasets. The strongest standardised path estimate is found in the electrical China dataset (0.60). This is followed by ALL (0.54), UK (0.49), US (0.42) and India (0.37). Results in the clothing dataset are more consistent with the same standardised path estimate in the ALL (0.54), China (0.54) and UK (0.54) datasets. Lower values are found in India (0.40) and US (0.39). Support is therefore given to the path between EPRI and EAC and H3 accepted.

***H4: ETRUST positively effects ELOYALTY***

The path between ETRUST and ELOYALTY overall demonstrates one of the weakest paths across countries primarily in the clothing sector (with 3 country datasets demonstrating insignificant paths). The US clothing dataset shows a negative and insignificant path relationship. Standardised path estimates are negative (-0.02) and insignificant at  $p = 0.790$ . The China and India country datasets in the clothing sector exhibit positive and insignificant path relationships. Standardised path estimates for

China (0.14) are insignificant at  $p = 0.221$  and for India (0.08) are insignificant at  $p = 0.388$ ). The UK dataset is the only country dataset to show a positive and significant path between ETRUST and ELOYALTY with a standardised path estimate of 0.37. This is additionally reflected in the ALL dataset which exhibits a weak positive but significant standardised path estimate (0.17). The electrical dataset is more consistent with positive and significant paths between ETRUST and ELOYALTY in the ALL (0.24), India (0.22), UK (0.28) and US (0.27) datasets. Diverging from this pattern, China is the only country dataset to demonstrate a positive but insignificant path relationship with a standardised path estimate of 0.06 insignificant at  $p = 0.539$ . H4 is therefore rejected in the clothing dataset in China, India and US and in the electrical dataset in China. This hypothesis (H4) is however, accepted in in the ALL and UK clothing dataset and the ALL, India, UK and US electrical datasets.

***H5: ERS positively effects ELOYALTY***

The path between ERS and ELOYALTY is generally positive and significant with two exceptions. The two exceptions include India and UK in the clothing sector. The path in the clothing India dataset has a positive standardised path estimate of 0.16 and is insignificant at  $p = 0.178$ . Similarly, the path in the clothing UK dataset has a very low positive standardised path estimate of 0.05 and is insignificant at  $p = 0.20$ . No support is given for these two cases. The remaining standardised path estimates are positive and significant in the clothing sector in ALL (0.28), China (0.24) and US (0.50) datasets with the US displaying the strongest standardised path estimates. The electrical dataset exhibits more consistent results across all datasets. Standardised path estimates are positive and significant in the ALL (0.47), China (0.28), India (0.55), UK (0.43) and US (0.45) datasets. H5 is therefore rejected in India and UK datasets in the clothing sector. H5 is

accepted in ALL, China and US datasets in the clothing sector and ALL, China, India, UK and US datasets in the electrical sector.

***H6: EAC positively effects ELOYALTY***

The path between EAC and ELOYALTY is positive and significant in all country datasets and sectors. The clothing dataset exhibits positive and significant standardised path estimates. The strongest path estimates are seen in the India (0.62) dataset, followed by China (0.50), ALL (0.41), UK (0.41) and US (0.36) datasets. The strongest standardised path estimates in the electrical dataset are found in China (0.54), followed by the ALL (0.22), UK (0.22), US (0.17) and India (0.17) datasets. Although some standardised path estimates are weak (India 0.17 and US 0.17) support is given for the path between EAC and ELOYALTY. H6 is therefore accepted across all countries and sectors as well as both ALL datasets.

***H7: ETRUST will have a positive effect on ERS***

The path between ETRUST and ERS is positive and significant across all countries and sectors. The standardised path estimates in the clothing dataset are all positive and significant and range in order of strength from; China (0.67), India (0.67), ALL (0.64), US (0.57) and UK (0.55). The standardised path estimates in the electrical dataset are additionally all positive and significant and range in order from; UK (0.63), India (0.61), ALL (0.59), China (0.55) and UK (0.44). Support is therefore given to the path relationship between ETRUST and ERS and H7 is accepted across all countries and sectors.

***H8: ERS will have a positive effect on EAC***



The path between ERS and EAC is positive and significant in all datasets in both clothing and electrical sector. Standardised path estimates although fairly weak are positive and significant in the clothing sector ranging from - All (0.20), China (.27), India (0.53), UK (0.15) and US (0.26). Similar results are seen in the electrical sector with positive and significant path estimates in the ALL (0.13), China (0.26), India (0.36), UK (0.20) and US (0.19) datasets. Support is therefore given to the path relationship between ERS and EAC in all country datasets across both the clothing and electrical sector. H8 is therefore accepted in all country and sector datasets.

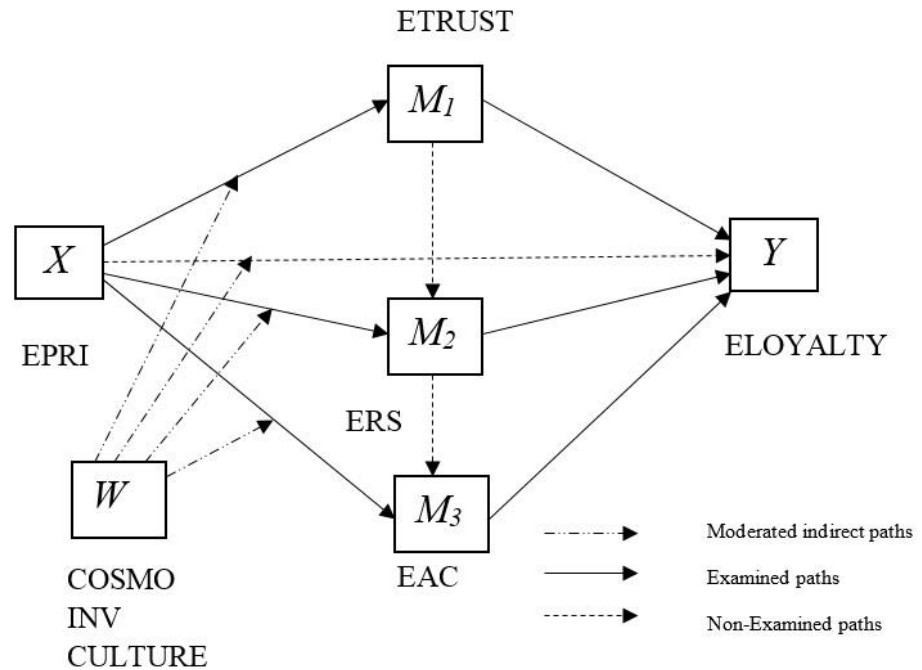
The main research question focuses on the impact of EPRI on ELOYALTY through ETRUST, ERS and EAC. These primary relationships have all been supported and EPRI has been shown to influence ETRUST, ERS and EAC in both the clothing and electrical sectors and across all countries. This is demonstrated by support for H1, H2 and H3 across both sectors and across all four countries (see Table 7.8). The strength of these relationships has been found to vary across countries and sectors suggesting the magnitude of the effect of EPRI on the individual dimensions differs in countries and sectors. Furthermore discrepancies between the constructs ETRUST, ERS, EAC and ELOYALTY have been found with H4 and H5 particularly affected. These results add further to the debate in the literature regarding the magnitude and directionality of relationships between these constructs within an international e-tailing environment. These results are discussed in more depth in Chapter eight.

### **7.7 Moderation - Conditional Process Analysis (Moderated Mediation)**

As discussed earlier conditional process analysis using Hayes' PROCESS V3.0 macro tool in SPSS is adopted to additionally examine the mechanisms and boundary conditions by which effects of the independent variable EPRI are transmitted on the dependant variable ELOYALTY through the mediating variables of ETRUST, ERS and EAC.

Conditional process analysis is conducted using an individually constructed PROCESS model as none of the 98 models supplied with Process 3.0 were an exact fit. This model is based on first stage moderation and includes 1 dependent variable (Y - ELOYALTY), 1 independent variable (X-EPRI) and 3 multiple mediators (M1- ETRUST, M2- ERS and M3- EAC) and 1 moderator (W). The model is rerun for each moderator: COSMO (consumer cosmopolitanism), INV (product category involvement) and Culture (national culture), allowing the moderating effect of one moderator on one indirect path to be examined individually. This model is then replicated across each country and both the clothing and electrical sectors. Variables are mean centred (X and W), bootstrapping samples of 5000 used, 95% CI using percentile method (16<sup>th</sup>, 50<sup>th</sup> and 84<sup>th</sup>) for indirect effects. The code for this can be seen in Appendix I.

National culture is examined using a categorical dummy variable with a binary coding of 1 and 0. The US and UK are coded as '1' to reflect a high level of individualism and China and India coded as '0' to reflect a low level of individualism. Consumer cosmopolitanism and product category involvement are based on continuous variables comprising of a composite variable of 6 and 2 items respectively. The conceptual model is shown in Figure 7.3 with the statistical model in Appendix I.

**Figure 7.3 Conditional Process Analysis Conceptual Model**

X- Independent variable, Y- Dependent variable, M – Mediators, W – Moderator  
 Examined paths relate to proposed hypotheses and non-examined paths do not relate to proposed hypotheses

The conceptual model shows the moderating effect (W) of consumer cosmopolitanism (COSMO), product category involvement (INV) and national culture (CULTURE) on the indirect effects of EPRI (X) on ELOYALTY (Y), through the mediators of ETRUST (M1), ERS (M2) and EAC (M3). Although the direct effect of EPRI on ELOYALTY is not part of the main model, has also been included for comparison purposes. The results examined are based on examining each moderating effect on each indirect path of:

$X \rightarrow M_1 \rightarrow Y$	[EPRI - ETRUST - ELOYALTY]
$X \rightarrow M_2 \rightarrow Y$	[EPRI - ERS - ELOYALTY]
$X \rightarrow M_3 \rightarrow Y$	[EPRI - EAC - ELOYALTY]

While other paths are also calculated ( $X \rightarrow M1 \rightarrow M2 \rightarrow Y$ ) and ( $X \rightarrow M1 \rightarrow M2 \rightarrow M3 \rightarrow Y$ ), these are not included in the analysis due to their lack of association with the proposed hypotheses.

### **7.7.1 Index of Moderated Mediation**

The index of moderated mediation quantifies the association between an indirect effect and a moderator and hence is suitable to examine moderated mediation effects (Hayes, 2018). Initially developed by Hayes (2013), this test builds on previous moderation techniques and specifically focuses on indirect effects assuming linear relationships (Edwards & Lambert, 2007; Preacher et al., 2007). The index of moderated mediation and related confidence levels are used to test for conditional indirect effects providing a more robust and simpler test in comparison to other methods. A moderation effect on an indirect path is said to have occurred when the value of the index of moderated mediation (IMM) does not equal 0 and the range between the lower and upper confidence levels does not include 0. The results can be seen in Table 7.9.

Extending the analysis of any moderation effects tests to ‘probe’ the moderated mediation are included via simple slopes diagrams (Aiken et al., 1991; Hayes, 2018). A spotlight analysis is additionally incorporated to visually display moderating effects of consumer cosmopolitanism, product category involvement and national culture on the indirect paths involving perceived retailer investments. Using a pick-a-point approach, interaction effects at various low, medium and high levels of the moderator (16<sup>th</sup>, 50<sup>th</sup> and 84<sup>th</sup> percentile of distribution) are examined and used to conduct inferences. As discussed by Hayes (2018), this is a more suitable approach for probing moderation of mediation.

### 7.7.2 Moderating influence of Consumer Cosmopolitanism (COSMO)

Examining the clothing dataset, cosmopolitanism is found to moderate the indirect effect of EPRI on affective commitment in the ALL dataset (IMM=.0202, CI<sub>95%</sub> . 0.0104, 0.0326). As the figure for the Index of moderated mediation (IMM) does not equal zero and CI levels do not include 0, it is possible to conclude the indirect effect is related to the moderator and moderated mediation has occurred. This implies consumers with higher levels of cosmopolitan orientation negatively affect the strength of the relationship between EPRI and EAC. On further examination, cosmopolitanism is seen to have a moderating effect on the indirect path from EPRI to ELOYALTY through EAC in China (IMM=0.0525, CI<sub>95%</sub> . 0.0117, 0.1044), India (IMM=0.0357, CI<sub>95%</sub> . 0.0079, 0.0735) and the UK (IMM=0.0222, CI<sub>95%</sub> . 0.0050, 0.0478).

The US shows different findings compared to the other countries and in contrast does not show any moderating influence of cosmopolitanism on the indirect effect of EPRI on ELOYALTY through EAC, US (IMM= 0.0141 CI<sub>95%</sub> [-0.0051, 0.00377]). On further inspection, results from the US are surprisingly different regarding consumer attitudes towards their emotional attachment to their clothing e-tailer. Different results are obtained from the electrical dataset with cosmopolitanism seen to have a moderating influence on the indirect effect of EPRI on ELOYALTY through EAC in only the ALL and China datasets. This is evident in the ALL (IMM= 0.044 CI<sub>95%</sub> [0.0009, 0.0099]) and China (IMM= 0.0311 CI<sub>95%</sub> [0.0041, 0.0771]) datasets. Again, the US dataset does not indicate any moderating influence of cosmopolitanism on the indirect effect of EPRI on ELOYALTY through EAC (IMM= 0.0034 CI<sub>95%</sub> [-0.0064, 0.0149]). This is also seen in the India (IMM= 0.0087 CI<sub>95%</sub> [0.0000, 0.00254]) and UK (IMM= 0.0015 CI<sub>95%</sub> [-

0.0015, 0.00144]) datasets with zero clearly appearing as a lower confidence interval, additionally highlighting a difference to the clothing dataset.

### **7.7.3 Moderating influence of Product Category Involvement (INV)**

The moderating influence of involvement varies between the clothing and the electrical dataset. Product category involvement shows a moderating influence on the indirect effect of EPRI on ELOYALTY through EAC in the clothing sector across all datasets. This is demonstrated in the ALL (IMM= 0.077 CI<sub>95%</sub> [0.0007, 0.00151]), China (IMM= 0.0397 CI<sub>95%</sub> [0.0012, 0.0900]), India (IMM= 0.0270 CI<sub>95%</sub> [0.0074, 0.0592]), UK (IMM= 0.0068 CI<sub>95%</sub> [0.0014, 0.0176]) and US datasets (IMM= 0.0184 CI<sub>95%</sub> [0.0016, 0.0399]). In contrast involvement is seen to negatively moderate the indirect effect of EPRI on ELOYALTY through ETRUST as opposed to EAC, in the electrical dataset. This is apparent in the ALL (IMM= -0.0130 CI<sub>95%</sub> [-0.0251, -0.0034]), UK (IMM= -0.00166 CI<sub>95%</sub> [-0.0398, -0.0006]) and US datasets (IMM= -0.0155 CI<sub>95%</sub> [-0.0408, -0.0001]). The moderating influence of involvement on this indirect path is not seen in both the China (IMM= -0.0060 CI<sub>95%</sub> [-0.0310, 0.0125]) and India datasets (IMM= -0.0114 CI<sub>95%</sub> [-0.0309, -0.0008]).

### **7.7.4 Moderating influence of National Culture**

The moderating role of culture is more consistent across the clothing and electrical datasets and is seen to moderate the indirect effect of EPRI on ELOYALTY through ETRUST. Values for IMM and the range between the lower and upper CIs do not contain zero in both the clothing (IMM= -0.0112 CI<sub>95%</sub> [-0.0238, -0.0017]) and electrical (IMM= -0.0116 CI<sub>95%</sub> [-0.0259, -0.0003]) datasets, indicating moderated mediation has occurred. Results are only provided for the ALL dataset due to the categorical nature of the culture

variable used (1- individualistic UK/US) and 0 – collectivist China/India). Additionally values in both datasets are negative suggesting collectivist countries rather than individualistic countries have a stronger effect on the indirect path between EPRI and ETRUST.

Table 7.9 Moderation – Index of Moderated Mediation and Confidence Intervals

		Clothing														
Moderator X - M - Y		All			China			India			UK			US		
		IMM	95% CI	$\Delta R^2$	IMM	95% CI	$\Delta R^2$	IMM	95% CI	$\Delta R^2$	IMM	95% CI	$\Delta R^2$	IMM	95% CI	$\Delta R^2$
		Lower, Upper			Lower, Upper			Lower, Upper			Lower, Upper			Lower, Upper		
COSMO	EPRI - ETRUST - ELOYALTY	-0.0018	-0.0128, 0.0076	0.0003	-0.0003	-0.0151, 0.0136	0.0000	-0.0019	-0.0245, 0.0199	0.0132	-0.0053	-0.0432, 0.0233	0.0009	0.0022	-0.0126, 0.0173	0.0034
	EPRI - ERS - ELOYALTY	0.0000	-0.0085, 0.0086	0.0000	-0.0073	-0.0292, 0.0061	0.0032	-0.0151	-0.0432, 0.0113	0.0054	0.0012	-0.0044, 0.0106	0.0035	-0.0002	-0.0180, 0.0214	0.0000
	EPRI - EAC - ELOYALTY	<b>0.0202*</b>	<b>0.0104, 0.0326*</b>	0.0109	<b>0.0525*</b>	<b>0.0117, 0.1044*</b>	0.0177	<b>0.0357*</b>	<b>0.0079, 0.0735*</b>	0.0154	<b>0.0222*</b>	<b>0.0050, 0.0478*</b>	0.0157	0.0141	-0.0051, 0.0377	0.0054
INV	EPRI - ETRUST - ELOYALTY	-0.0012	-0.0090, 0.0060	0.0002	-0.0011	-0.0199, 0.0132	0.0002	0.0071	-0.0115, 0.0262	0.0557	-0.0053	-0.0432, 0.0223	0.0033	0.0021	-0.0173, 0.0274	0.0270
	EPRI - ERS - ELOYALTY	0.0050	-0.0017, 0.0116	0.0019	-0.0062	-0.0266, 0.0058	0.0032	0.0028	-0.0041, 0.0120	0.0020	0.0012	-0.0044, 0.0106	0.0106	0.0065	-0.0121, 0.0242	0.0010
	EPRI - EAC - ELOYALTY	<b>0.0077*</b>	<b>0.0007, 0.0151*</b>	0.0028	<b>0.0397*</b>	<b>0.0012, 0.0900*</b>	0.0128	<b>0.0270*</b>	<b>0.0074, 0.0592*</b>	0.0146	<b>0.0068*</b>	<b>0.0014, 0.0176*</b>	0.0051	<b>0.0184*</b>	<b>0.0016, 0.0399*</b>	0.0131
CULTURE	EPRI - ETRUST - ELOYALTY	<b>-0.0112*</b>	<b>-0.0238, -0.0017*</b>	0.0073												
	EPRI - ERS - ELOYALTY	-0.0017	-0.0105, 0.0060	0.0001												
	EPRI - EAC - ELOYALTY	-0.0021	-0.0157, 0.0119	0.0001												
		Electrical														
Moderator X - M - Y		All			China			India			UK			US		
		IMM	95% CI	$\Delta R^2$	IMM	95% CI	$\Delta R^2$	IMM	95% CI	$\Delta R^2$	IMM	95% CI	$\Delta R^2$	IMM	95% CI	$\Delta R^2$
		Lower, Upper			Lower, Upper			Lower, Upper			Lower, Upper			Lower, Upper		
COSMO	EPRI - ETRUST - ELOYALTY	-0.0109	-0.0255, 0.0019	0.0066	0.0003	-0.0141, 0.0205	0.0000	-0.0073	-0.0379, 0.0172	0.0030	0.0158	-0.0499, 0.0049	0.0173	-0.0106	-0.0349, 0.0044	0.0069
	EPRI - ERS - ELOYALTY	0.0010	-0.0135, 0.0124	0.0000	-0.0100	-0.0296, 0.0066	0.0032	-0.0100	-0.0460, 0.0384	0.0011	0.0080	-0.0075, 0.0232	0.0022	0.0098	-0.0182, 0.0350	0.0015
	EPRI - EAC - ELOYALTY	<b>0.0044*</b>	<b>0.0009, 0.0099*</b>	0.0045	<b>0.0311*</b>	<b>0.0041, 0.0771*</b>	0.0177	0.0087	0.000, 0.0254	0.0093	0.0015	-0.0015, 0.0144	0.0005	0.0034	-0.0064, 0.0149	0.0020
INV	EPRI - ETRUST - ELOYALTY	<b>-0.0130*</b>	<b>-0.0251, -0.0034*</b>	0.0116	-0.0060	-0.0310, 0.0125	0.0058	-0.0114	-0.0309, 0.0008	0.0137	<b>-0.0166*</b>	<b>-0.0398, -0.0006*</b>	0.0202	<b>-0.0155*</b>	<b>-0.0408, -0.0001*</b>	0.0167
	EPRI - ERS - ELOYALTY	-0.0090	-0.0220, 0.0023	0.0021	-0.0080	-0.0278, 0.0044	0.0048	-0.0162	-0.0412, 0.0170	0.0053	-0.0046	-0.0242, 0.0105	0.0008	-0.0070	-0.0363, 0.0210	0.0008
	EPRI - EAC - ELOYALTY	0.0022	-0.0010, 0.0063	0.0013	0.0245	-0.0007, 0.0659	0.0079	0.0059	-0.0004, 0.0204	0.0072	0.0023	-0.0097, 0.0046	0.0015	0.0065	-0.0019, 0.0203	0.0087
CULTURE	EPRI - ETRUST - ELOYALTY	<b>-0.0116*</b>	<b>-0.0259, -0.0003*</b>	0.0046												
	EPRI - ERS - ELOYALTY	-0.0053	-0.0197, 0.0082	0.0040												
	EPRI - EAC - ELOYALTY	0.0036	-0.0016, 0.0101	0.0008												

IMM - Index of moderated mediation. If IMM  $\neq$  0 and upper and lower confidence intervals do not contain 0, then moderated mediation can be said to have occurred. \* Significant moderated mediated effect

X= independent variable (EPRI), Y=outcome variable (ELOYALTY), M= mediating variable (ETRUST, ERS, EAC) EPRI (online perceived relationship investment), ELOYALTY(online loyalty), ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), COSMO (consumer cosmopolitanism), INV (product category involvement), CULTURE (dimensions of individualism and collectivism) - categorical variable coded 1 (individualism) and 0 (collectivism)

CI at 95% lower and upper levels, 5,000 bootstrap, mean centered variables: cosmopolitanism, culture, involvement and EPRI.  $\Delta R^2$  (change in squared multiple correlation)



### **7.7.5 Simple Slope Analysis**

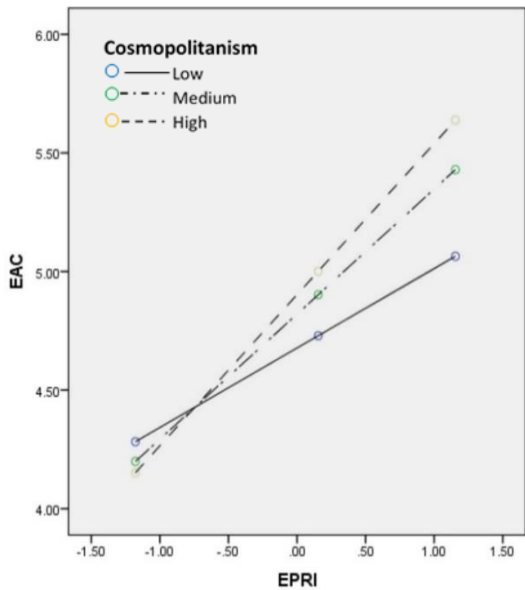
The moderating effects of COSMO (consumer cosmopolitanism), INV (product category involvement) and national culture are examined further with the interaction effects visually presented. A simple slope analysis is conducted using standard regression at  $\pm 1$  SD of the mean, showing low, medium and high levels of the moderator (Aiken et al., 1991). The moderating influence of consumer cosmopolitanism on the indirect effect of EPRI on ELOYALTY through EAC across the four countries in the clothing dataset is shown in Figure 7.4 and in the electrical dataset in Figure 7.5. The figures show effects of low, medium and high levels of cosmopolitanism on the indirect effect of EPRI on ELOYALTY through EAC. The gradient of the slope highlights the moderating effect, where the steeper the slope the greater the moderating effect. The clothing dataset results displayed in Figure 7.4 show charts for China, India and the UK with significantly steeper curves at higher levels. This demonstrates higher levels of cosmopolitanism results in stronger interactions between EPRI and EAC. In comparison, the chart for the US shows no significant moderating effect of cosmopolitanism as demonstrated by the parallel slopes. The results for the electrical dataset are seen in Fig 7.5. The diagram for China (Panel A), shows significantly steeper curves at higher levels indicating a moderating effect. In contrast Panel B (India) displays more parallel slopes with Panel C (UK) and Panel D (US) showing narrower slopes both suggesting no moderating influence.

The moderating influence of involvement can be seen in Figure 7.6 (Clothing dataset) and Figure 7.7 (Electrical dataset). Involvement is seen to have a moderating effect on the indirect effect of EPRI on EAC in all countries as shown in Figure 7.6 in the clothing dataset. Panel A, B, C and D show steeper slopes at higher levels of involvement. The electrical dataset (Figure 7.7) displays different results with a negative moderating effect

shown in the UK (Panel C) and US (Panel D) datasets. Interestingly, unlike the clothing dataset, involvement has a negative moderating influence on the indirect effect of EPRI on ETRUST as demonstrated by downward slopes. This suggests higher levels of consumer involvement in the electrical sector weakens the indirect effect of EPRI on ELOYALTY through ETRUST. The final simple slopes diagram (Figure 7.8), indicates culture has a moderating influence on the indirect path between EPRI and ELOYALTY through ETRUST in both the clothing and electronics sector. Both diagrams show downward slopes suggesting a negative moderating effect.

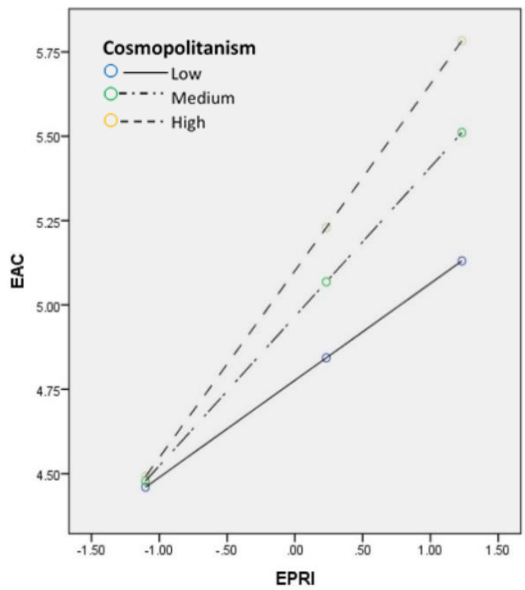
Figure 7.4 Moderating influence of COSMO on the indirect effect of EPRI on ELOYALTY through EAC – Clothing dataset

Panel A: China



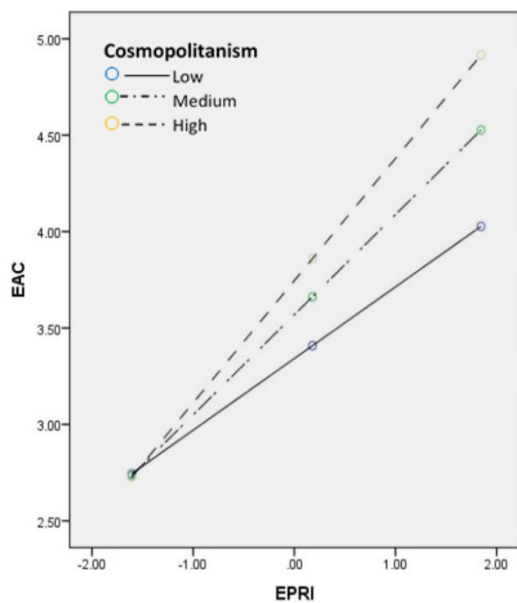
Moderating effect of COSMO on EPRI and EAC

Panel B: India



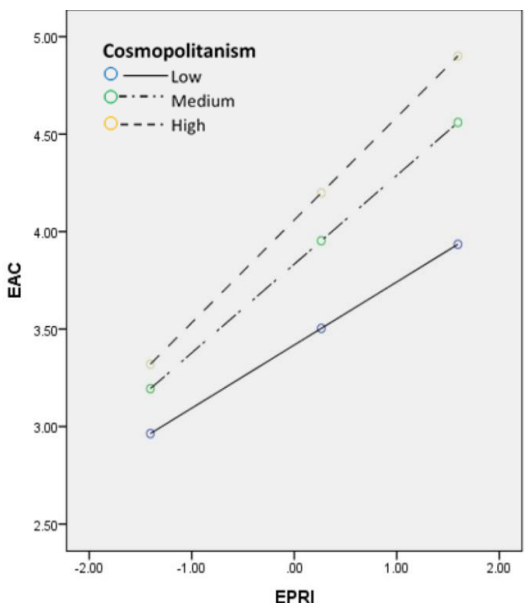
Moderating effect of COSMO on EPRI and EAC

Panel C: UK



Moderating effect of COSMO on EPRI and EAC

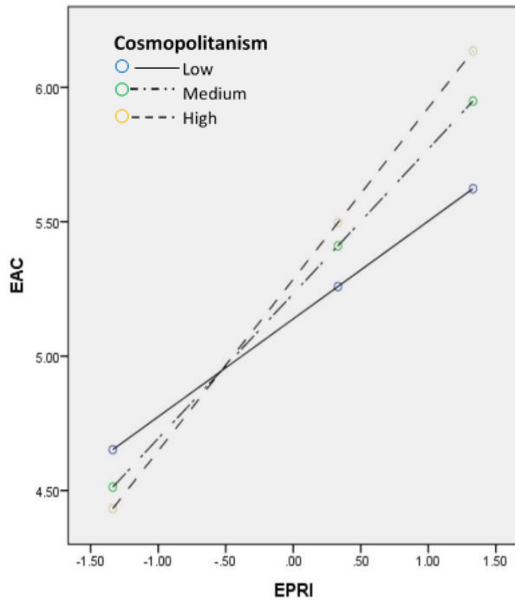
Panel D: US



No Moderating effect of COSMO on EPRI and EAC

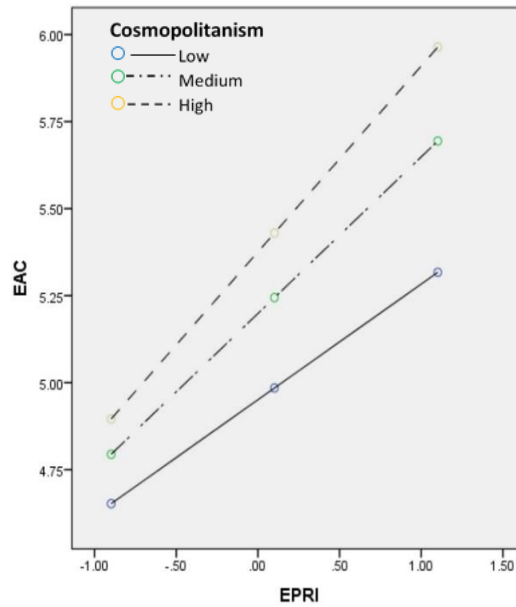
**Figure 7.5** Moderating influence of COSMO on the indirect effect of EPRI on ELOYALTY through EAC –**Electrical dataset**

**Panel A: China**



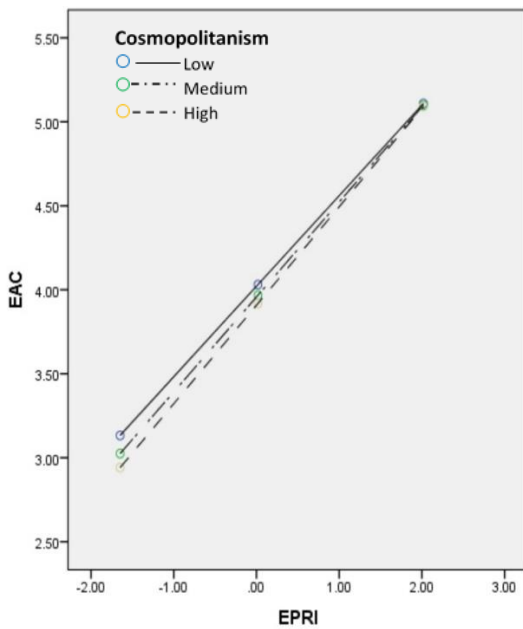
*Moderating effect of COSMO on EPRI and EAC*

**Panel B: India**



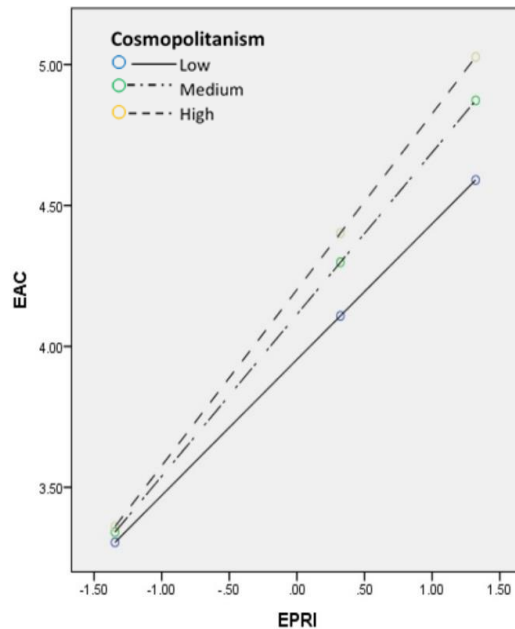
*No moderating effect of COSMO on EPRI and EAC*

**Panel C: UK**



*No moderating effect of COSMO on EPRI and EAC*

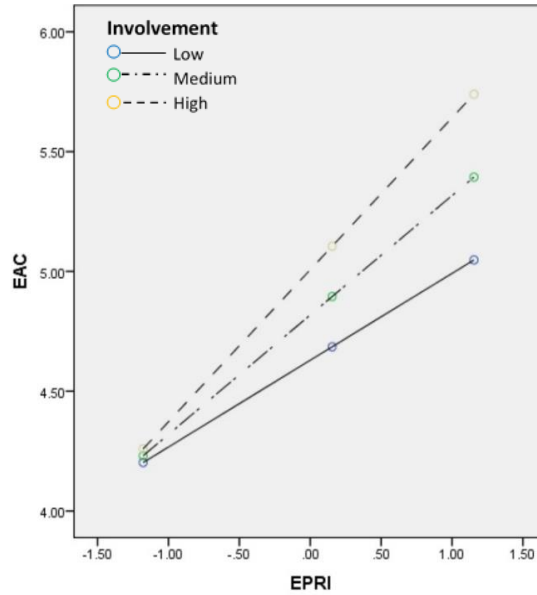
**Panel D: US**



*No moderating effect of COSMO on EPRI and EAC*

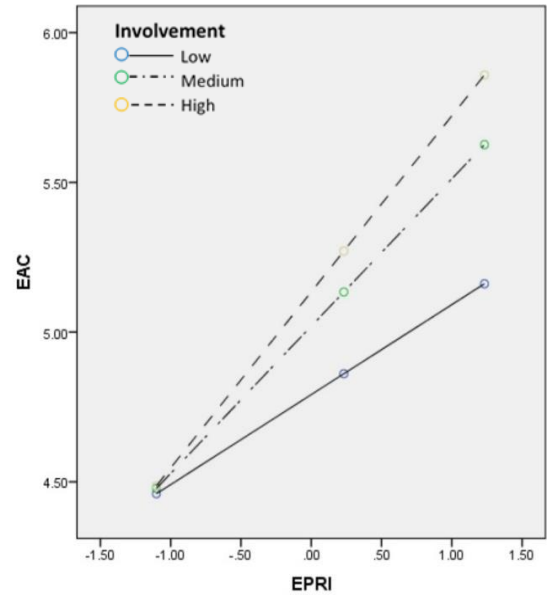
**Figure 7.6 Moderating influence of INV on the indirect effect of EPRI on ELOYALTY through EAC –Clothing dataset**

**Panel A: China**



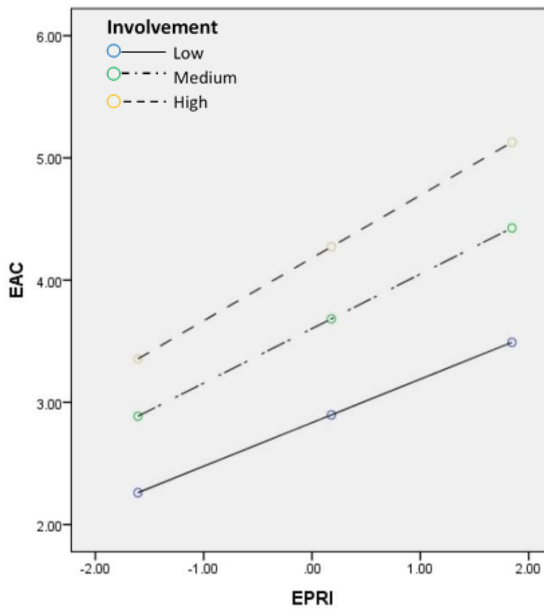
*Moderating effect of INV on EPRI and EAC*

**Panel B: India**



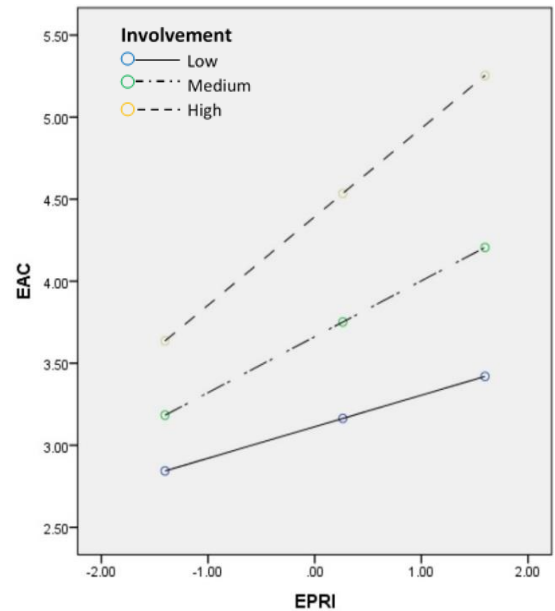
*Moderating effect of INV on EPRI and EAC*

**Panel C: UK**



*Moderating effect of INV on EPRI and EAC*

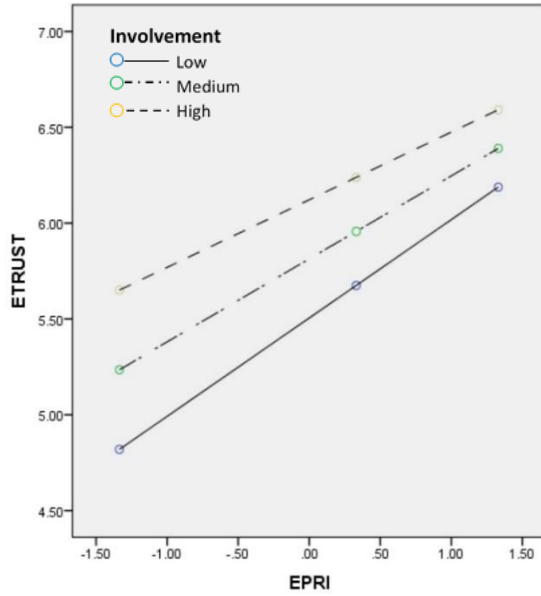
**Panel D: US**



*Moderating effect of INV on EPRI and EAC*

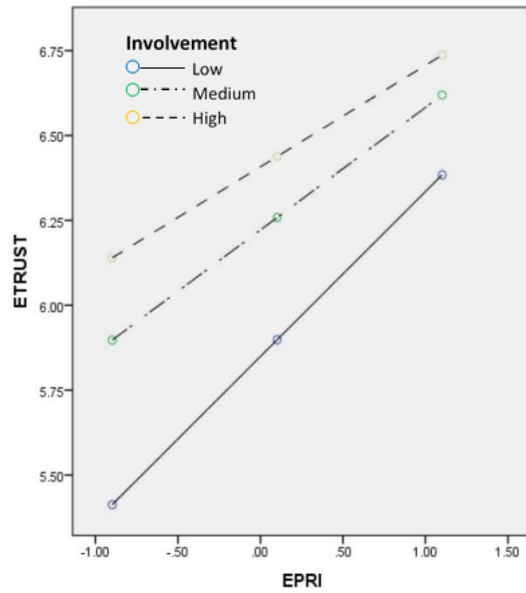
**Figure 7.7 Moderating influence of INV on the indirect effect of EPRI on ELOYALTY through ETRUST- Electrical dataset**

**Panel A: China**



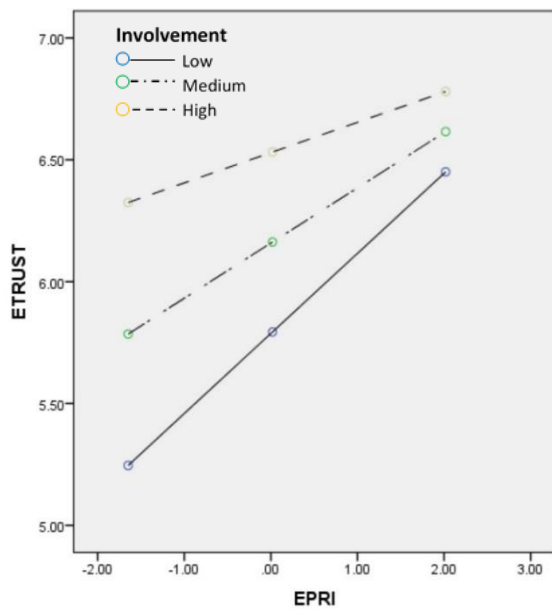
*No Moderating effect of INV on EPRI and ETRUST*

**Panel B: India**



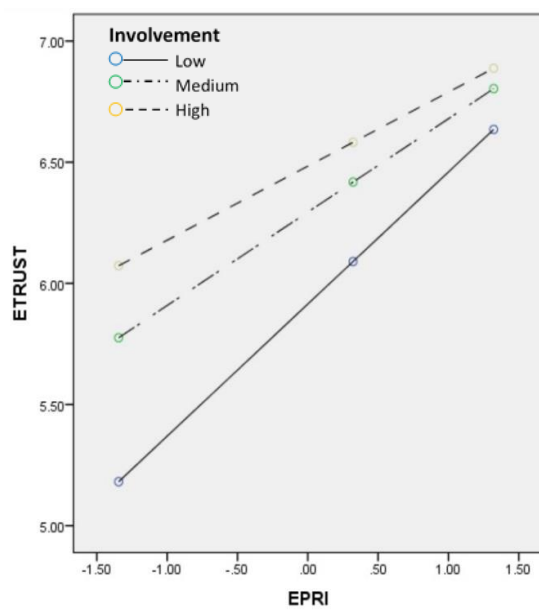
*No Moderating effect of INV on EPRI and ETRUST*

**Panel C: UK**

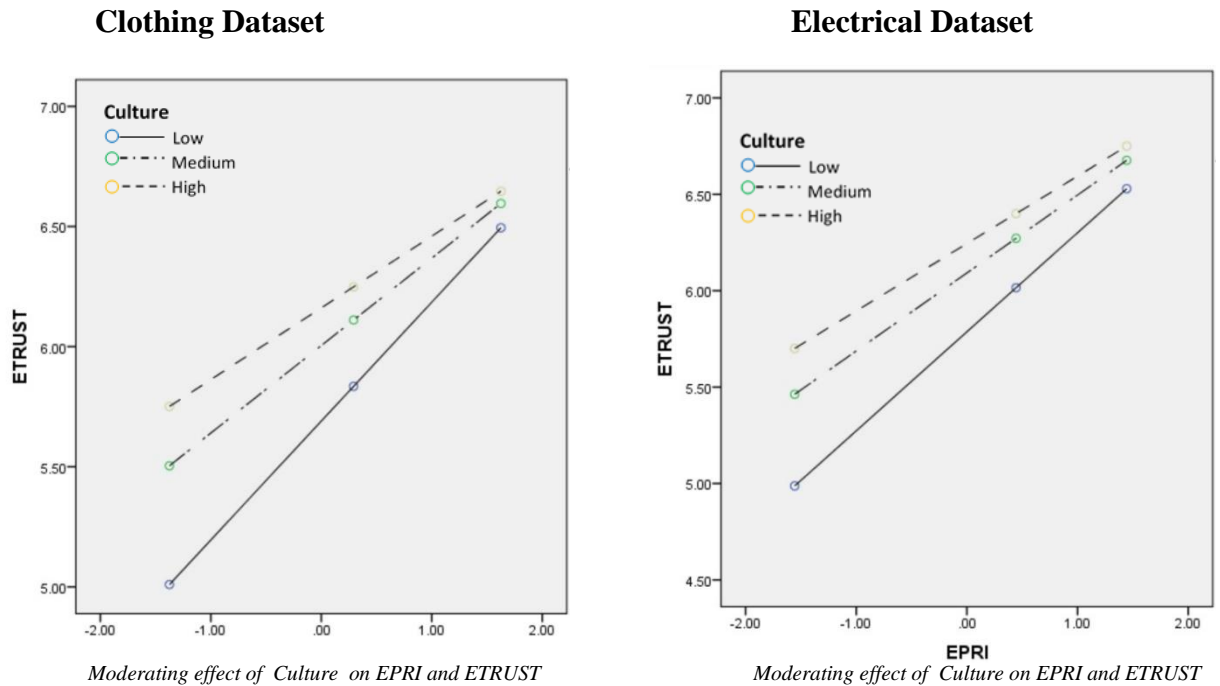


*Negative Moderating effect of INV on EPRI and ETRUST*

**Panel D: US**



*Negative Moderating effect of INV on EPRI and ETRUST*

**Figure 7.8 Moderating influence of National Culture –Clothing and Electrical Dataset**

### 7.7.6 Moderation Hypotheses Results

The moderating effect of consumer cosmopolitanism is shown by the acceptance of H9c in both the clothing and electrical ALL datasets. Differences, however are highlighted in both sectors based on individual country datasets. The hypothesis H9c is accepted in the clothing dataset in China, India and the UK and rejected in the US. Whereas, the electrical dataset demonstrates acceptance of hypotheses H9c in only the China dataset. The moderating influence of product category involvement in contrast to consumer cosmopolitanism and national culture, significantly varies across the clothing and electrical datasets. The clothing dataset shows greater consistency with H10c accepted across all five datasets. While this hypothesis is rejected in the electrical dataset, H10a<sub>2</sub> is accepted but only in the ALL, UK and US datasets. Finally the moderating role of national culture via collectivism is established with the acceptance of H11a across both the clothing and electrical datasets. These results are discussed further in Chapter 8.

**Table 7.10 Results of Hypotheses testing (moderators)**

<b>Clothing</b>								
<b>Hypothesis</b>		<b>Moderator (W)</b>	<b>Indirect path (X-M-Y)</b>	<b>ALL</b>	<b>China</b>	<b>India</b>	<b>UK</b>	<b>US</b>
<b>H9a</b>	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ETRUST	COSMO	EPRI - ETRUST - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected
<b>H9b</b>	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ERS	COSMO	EPRI - ERS - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected
<b>H9c</b>	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through EAC	COSMO	EPRI - EAC - ELOYALTY	Accepted	Accepted	Accepted	Accepted	Rejected
<b>H10a<sub>1</sub></b>	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ETRUST (in hedonic sectors)	INV	EPRI - ETRUST - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected
<b>H10b</b>	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ERS	INV	EPRI - ERS - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected
<b>H10c</b>	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through EAC	INV	EPRI - EAC - ELOYALTY	Accepted	Accepted	Accepted	Accepted	Accepted
<b>H11a</b>	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through ETRUST	CULTURE	EPRI - ETRUST - ELOYALTY	Accepted				
<b>H11b</b>	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through ERS	CULTURE	EPRI - ERS - ELOYALTY	Rejected				
<b>H11c</b>	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through EAC	CULTURE	EPRI - EAC - ELOYALTY	Rejected				
<b>Electrical</b>								
<b>Hypothesis</b>		<b>Moderator (W)</b>	<b>Indirect path (X-M-Y)</b>	<b>ALL</b>	<b>China</b>	<b>India</b>	<b>UK</b>	<b>US</b>
<b>H9a</b>	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ETRUST	COSMO	EPRI - ETRUST - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected
<b>H9b</b>	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ERS	COSMO	EPRI - ERS - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected
<b>H9c</b>	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through EAC	COSMO	EPRI - EAC - ELOYALTY	Accepted	Accepted	Rejected	Rejected	Rejected
<b>H10a<sub>2</sub></b>	Higher levels of product category involvement weaken the indirect effect of EPRI on ELOYALTY through ETRUST (in functional sectors)	INV	EPRI - ETRUST - ELOYALTY	Accepted	Rejected	Rejected	Accepted	Accepted
<b>H10b</b>	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ERS	INV	EPRI - ERS - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected
<b>H10c</b>	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through EAC	INV	EPRI - EAC - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected
<b>H11a</b>	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through ETRUST	CULTURE	EPRI - ETRUST - ELOYALTY	Accepted				
<b>H11b</b>	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through ERS	CULTURE	EPRI - ERS - ELOYALTY	Rejected				
<b>H11c</b>	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through EAC	CULTURE	EPRI - EAC - ELOYALTY	Rejected				
ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online relationship satisfaction), COSMO (consumer cosmopolitanism), INV (product category involvement), CULTURE (dimensions of individualism and collectivism)								



## **7.8 Alternative Model**

An alternative model was additionally examined against the hypothesised model in terms of model fit and positive standardised path estimates with significant p-values (Morgan & Hunt, 1994). The alternative model for the clothing sector is captured in Figure 7.9a and for the electrical sector is shown in Figure 7.9b. The alternative model examines the direct relationship between EPRI and ELOYALTY, with EPRI remaining as the main independent variable and ELOYALTY as the main outcome variable. Unlike the hypothesised model, EPRI is not examined through relational mediators of ETRUST, ERS and EAC. This direct path suggests consumers may value e-tailer investments and directly reciprocate with higher levels of loyalty (De Wulf et al., 2001). RQ is examined as an aggregate construct with ETRUST, ERS and EAC as second order constructs. This examines the competing effects of RQ as a disaggregated and aggregated construct. The effect of EPRI is not examined on individual dimensions of relationship quality but directly to RQ. Interrelationships between ETRUST, ERS and EAC are therefore not examined. The focus shifts to comparing path relationships between RQ and ETRUST, ERS and EAC concentrating on the effect of EPRI on RQ as a first-order construct. EPRI is examined in terms of its predictive power directly to ELOYALTY and additionally to RQ and transforming the role of RQ from an overall mediating variable to an outcome variable.

Figure 7.9a Alternative structural model (Clothing)

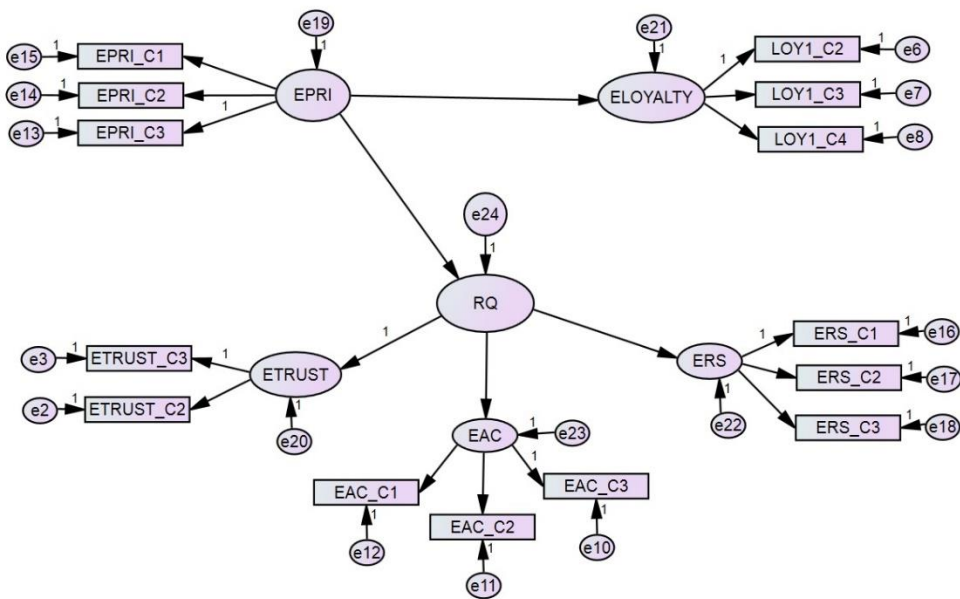
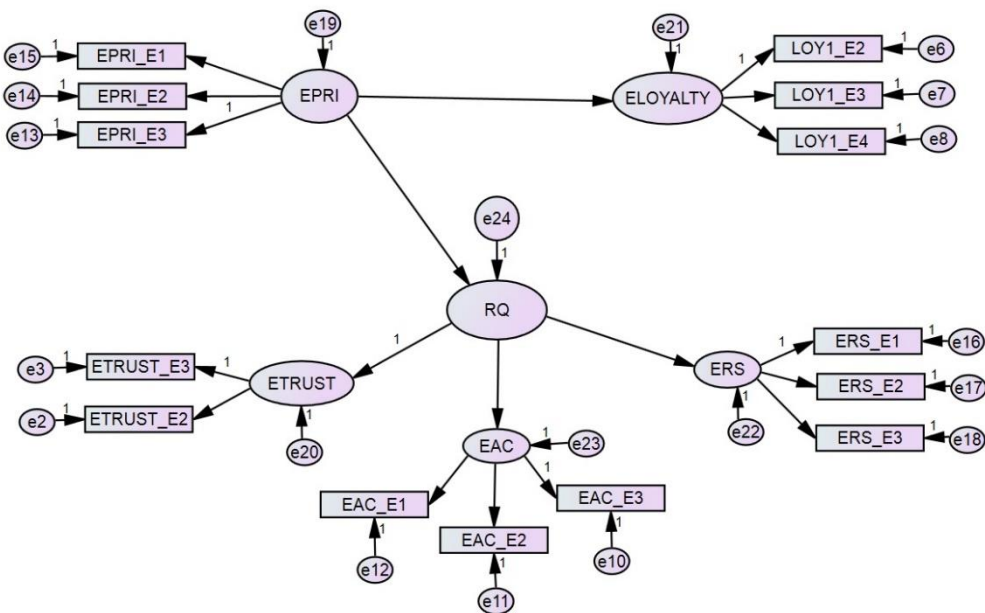


Figure 7.9b Alternative structural model (Electrical)



EPRI - online perceived relationship investment, ETRUST - online ongoing trust, ERS - online relationship satisfaction, EAC - online affective commitment, ELOYALTY - online loyalty, RQ – Relationship Quality

Results for model fit for the alternative models are displayed in Table 7.11. The values in parentheses are from the hypothesised structural model and are only included for comparative purposes. Comparative values are given for chi-square, normed-chi-square, CFI, TLI, GFI, SRMR and RMSEA.

**Table 7.11 Alternative Structural Model Fit**

Clothing																
	$\chi^2$		df	$\chi^2/df$		p-level	CFI		TLI		GFI		SRMR	RMSEA		
ALL	584.917	(234.024)	72	8.124	(3.392)	0.000	0.959	(0.987)	0.948	(0.983)	0.925	(0.968)	0.116	(0.038)	0.084	(0.049)
China	158.599	(124.189)	72	2.203	(1.800)	0.000	0.967	(0.979)	0.959	(0.972)	0.921	(0.936)	0.069	(0.036)	0.070	(0.057)
India	194.420	(127.231)	72	2.700	(1.844)	0.000	0.957	(0.980)	0.946	(0.973)	0.905	(0.930)	0.900	(0.043)	0.083	(0.058)
UK	299.679	(181.003)	72	4.162	(2.623)	0.000	0.934	(0.968)	0.917	(0.957)	0.861	(0.910)	0.148	(0.059)	0.112	(0.080)
US	161.549	(129.617)	72	2.244	(1.879)	0.000	0.975	(0.983)	0.969	(0.978)	0.922	(0.933)	0.090	(0.054)	0.700	(0.059)
Electrical																
	$\chi^2$		df	$\chi^2/df$		p-level	CFI		TLI		GFI		SRMR	RMSEA		
ALL	703.021	(317.684)	72	9.764	(4.604)	0.000	0.955	(0.982)	0.943	(0.976)	0.906	(0.958)	0.108	(0.0411)	0.093	(0.060)
China	169.590	(146.420)	72	2.355	(2.122)	0.000	0.967	(0.974)	0.958	(0.965)	0.915	(0.926)	0.050	(0.0397)	0.074	(0.067)
India	239.901	(178.429)	72	3.332	(2.586)	0.000	0.946	(0.965)	0.932	(0.954)	0.875	(0.913)	0.069	(0.0426)	0.097	(0.043)
UK	298.663	(153.403)	72	4.148	(2.223)	0.000	0.939	(0.977)	0.923	(0.970)	0.864	(0.921)	0.069	(0.0452)	0.112	(0.700)
US	220.256	(168.406)	72	3.059	(2.441)	0.000	0.965	(0.977)	0.956	(0.969)	0.897	(0.914)	0.088	(0.0477)	0.900	(0.075)
Model fit indices with acceptable threshold levels: $\chi^2$ (chi square), df (degrees of freedom), $\chi^2$ /df (normed chi-square) $\leq 5$ , (p-value) $\leq 0.05$ , CFI (comparative fit index) $\geq 0.95$ , TLI (Tucker-Lewis index) $\geq 0.95$ , GFI (goodness of fit index) $\geq 0.90$ , SRMR (standardised root mean square residual) $\leq 0.08$ , RMSEA (root mean square error of approximation) $\leq 0.08$ )																
Values in parentheses are from the hypothesised model and included for comparison purposes																

Model fit is generally weaker in the alternative model compared to the hypothesised model in both the clothing and electrical sectors. Examining the clothing sector, the normed-chi square values in the alternative model are all higher ( $\chi^2/df$  ranging from 2.203 to 8.124) than comparative values in the hypothesized model  $\chi^2/df$  ranging from 1.800 to 3.392). However normed-chi square values ( $\chi^2/df$ ) still fall within acceptable threshold levels of less than 5 (Hair et. al, 2018), with the exception of the ALL dataset ( $\chi^2/df = 8.124$ ). Both CFI and TLI values in the alternative model are below values found in the hypothesised model. The alternative model contains CFI values ranging from (0.934 to 0.959) and TLI values ranging from (0.917 to 0.969). In comparison hypothesised model values range from (0.968 to 0.987) for CFI and from (0.957 to 0.983) for TLI and all values are higher than alternative model counterparts. Similarly GFI values in the

alternative model (0.861 to 0.925) are all lower than hypothesised model values (0.910 to 0.968). SRMR and RMSEA values are significantly worse in the alternative model across all country datasets. SRMR values range from (0.069 to 0.148) and RMSEA from (0.070 to 0.112) in the alternative model with a number beyond the 0.8 acceptable threshold.

The results from the electrical dataset are similar with model fit generally worse in the alternative model. The normed-chi square values range from  $\chi^2/df = 2.355$  to 9.764 in the alternative model compared to lower values in the hypothesised model  $\chi^2/df = 2.122$  to 4.604. The CFI and TLI values are all lower in the alternative model compared to hypothesized model counterparts. The CFI values range from (0.939 to 0.967) and TLI values from (0.923 to 0.958) in the alternative model. In comparison CFI values range from (0.965 to 0.982) and TLI values (0.954 to 0.976) in the hypothesised model and are higher across all country datasets. The GFI values are all lower in the alternative model (ranging from 0.864 to 0.915) compared to associated hypothesised model values (ranging from 0.913 to 0.958) suggesting worse model fit. SRMR ranging from (0.050 to 0.108) and RMSEA ranging from (0.074 to 0.112) values are all worse in the alternative model compared to counterparts in the hypothesised model. SRMR values in the hypothesised model range from (0.0397 to 0.477) and RMSEA values range from (0.043 to 0.075). Table 7.12 displays the standardised and unstandardised path estimates from the alternative model. Standardised path estimates are all positive and significant across all paths and datasets.

**Table 7.12 Alternative Structural Path Estimates**

Path	ALL	China	India	UK	US
<b>Clothing</b>					
EPRI - ELOYALTY	0.65 (0.64)	0.74 (0.83)	0.76 (0.81)	0.48 (0.44)	0.72 (0.74)
EPRI - RQ	0.71 (0.45)	0.83 (0.76)	0.75 (0.51)	0.67 (0.31)	0.75 (0.48)
RQ - ETRUST	0.82 (1.00)	0.90 (1.00)	0.83 (1.00)	0.73 (1.00)	0.81 (1.00)
RQ - EAC	0.62 (1.27)	0.77 (1.06)	0.84 (1.45)	0.59 (1.51)	0.59 (1.23)
RQ - ERS	0.89 (1.01)	0.88 (0.84)	0.93 (1.13)	0.83 (1.05)	0.91 (1.05)
<b>Electrical</b>					
EPRI - ELOYALTY	0.73 (0.63)	0.83 (0.81)	0.85 (0.68)	0.63 (0.48)	0.73 (0.81)
EPRI - RQ	0.76 (0.49)	0.87 (0.75)	0.85 (0.58)	0.65 (0.35)	0.83 (0.58)
RQ - ETRUST	0.81 (1.00)	0.84 (1.00)	0.87 (1.00)	0.78 (1.00)	0.76 (1.00)
RQ - EAC	0.57 (1.17)	0.83 (1.01)	0.69 (1.16)	0.54 (1.23)	0.56 (1.36)
RQ - ERS	0.92 (1.11)	0.92 (0.93)	0.93 (1.22)	0.93 (1.15)	0.88 (1.14)
ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online relationship investment), RQ (relationship quality) Insignificant paths at $*p \geq 0.05$ , Standardised path estimates, unstandardised path estimates in parentheses					

The direct path between EPRI and LOYALTY displays strong standardised path estimates in all datasets in the electrical sector (ranging from 0.63 to 0.83) and clothing sector (ranging from 0.48 to 0.74). The weakest path is found in the UK clothing dataset (0.48). The direct path between EPRI and RQ similarly exhibits strong standardised path estimates ranging from (0.67 to 0.83) in the clothing sector and (0.65 to 0.87) in the electrical sector. Results suggest RQ and ELOYALTY can both be treated as viable outcomes of EPRI. Standardised path estimates are expected to be stronger between EPRI and RQ, given the aggregated composition of the RQ construct. Standardised path estimates between RQ and its second-order constructs ETRUST, ERS and EAC are all positive and significant. The RQ and ERS path demonstrate some of the strongest standardised path estimates with values ranging from (0.83 to 0.91) in the clothing sector and (0.88 to 0.93) in the electrical sector. The relationship between RQ and ETRUST additionally show some strong standardised path estimates ranging from (0.81 to 0.0.90)

in the clothing sector and (0.76 to 0.87) in the electrical sector. The final path relationship between RQ and EAC is weaker in comparison to the path relationships between RQ and ETRUST and RQ and ERS. Standardised path estimates in the clothing sector range from (0.59 to 0.84) and in the electrical sector from (0.54 to 0.83).

Overall results suggest model fit is worse in the alternative model compared to the hypothesised model. This could indicate RQ as a disaggregated construct provides better fit between the model and data. The relationship between EPRI and ELOYALTY is better examined through relational mediators of ETRUST, ERS and EAC as proposed in the hypothesised model. Furthermore, the alternative model does not address the directionality of relationships between ETRUST, ERS and EAC. Additionally it does not examine the magnitude of EPRI effects on ETRUST, ERS and EAC individually. Standardised path estimates in the alternative model are all fairly strong and all paths show positive and significant results. This confirms the strength of the relationships between latent variables. The direct path between EPRI and ELOYALTY is strong across all country and sector datasets suggesting the validity of this path in additional models. Similarly the path between EPRI and RQ is strong across all datasets and supports a number of studies that confirm this relationship. However, although standardised path estimates are strong, overall model fit is weak suggesting support for the hypothesised model. Further support is given to the hypothesised model by comparing Akaike information criterion (AIC) values and Bayesian information criterion values (BIC). Results are shown in Table 7.13

Table 7.13 Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC)

<b>Clothing</b>								
	Model	No. Par	$x^2$	$x^2/df$	AIC	$\Delta$ AIC	BIC	$\Delta$ BIC
<b>ALL</b>	<b>1</b>	8	234.024	3.392	306.024	0.000	307.110	0.000
	<b>2</b>	5	584.917	8.124	650.917	344.893	813.201	506.091
<b>China</b>	<b>1</b>	8	124.189	1.800	196.189	0.000	322.961	0.000
	<b>2</b>	5	158.599	2.203	224.599	28.410	340.807	17.846
<b>India</b>	<b>1</b>	8	127.231	1.844	199.231	0.000	326.003	0.000
	<b>2</b>	5	194.420	2.700	260.420	61.189	376.628	50.625
<b>UK</b>	<b>1</b>	8	181.003	2.623	253.003	0.000	380.205	0.000
	<b>2</b>	5	299.679	4.162	365.679	112.676	482.281	102.076
<b>US</b>	<b>1</b>	8	129.617	1.879	201.617	0.000	329.384	0.000
	<b>2</b>	5	161.549	2.244	227.549	25.932	344.669	15.285
<b>Electrical</b>								
	Model	No. Par	$x^2$	$x^2/df$	AIC	$\Delta$ AIC	BIC	$\Delta$ BIC
<b>ALL</b>	<b>1</b>	8	317.684	4.604	389.684	0.000	566.722	0.000
	<b>2</b>	5	703.021	9.764	769.021	379.337	931.306	364.584
<b>China</b>	<b>1</b>	8	146.420	2.122	218.420	0.000	345.193	0.000
	<b>2</b>	5	169.590	2.355	235.590	17.170	351.798	6.605
<b>India</b>	<b>1</b>	8	178.429	2.586	250.429	0.000	377.202	0.000
	<b>2</b>	5	239.901	3.332	305.901	55.472	579.753	202.551
<b>UK</b>	<b>1</b>	8	153.403	2.223	225.403	0.000	352.605	0.000
	<b>2</b>	5	298.663	4.148	364.663	139.260	481.265	128.660
<b>US</b>	<b>1</b>	8	168.406	2.441	240.406	0.000	368.173	0.000
	<b>2</b>	5	220.256	3.059	286.256	45.850	403.376	35.203
Model 1 - hypothesised model					Model 2 - alternative model			
AIC - Akaike informational criterion					BIC - Bayesian information criterion			
$\Delta$ AIC = [AIC - minAIC]					$\Delta$ BIC = [BIC - minBIC]			
No. Par - number of parameter estimates in model			$x^2$ (chi-square)	$x^2/df$ (normed chi-square)				

Studies advocate the use of AIC and BIC values for non-nested model comparison in addition to goodness-of-fit indices (Akaike, 1987; Raftery, 1993; Kline, 2016). Emerging from an information theory approach AIC and BIC values estimate the quality of competing models against each other providing more robust means for model selection (Akaike, 1987; Raftery, 1993; Kuha, 2004; Burnham & Anderson, 2004). Although similar BIC values account for larger sample sizes and AIC values may be considered more appropriate for comparisons between only two competing models (Haughton et al., 1997; Burnham & Anderson, 2002). Lower AIC and BIC values suggest a more

parsimonious model in comparison to competing models with higher AIC and BIC values. Results from Table 7.13 indicate all AIC and BIC values in the hypothesised model (model 1) are lower than values from the alternative model (model 2) and hence show greater support for the hypothesised model. Given the criticism of ‘raw’ AIC and BIC values of potentially being imprecise (Burnham & Anderson, 2002) delta values of  $\Delta AIC$  and  $\Delta BIC$  are additionally provided. The relative performance of models based on the difference between the lowest AIC and BIC values are examined. The majority of delta  $\Delta AIC$  and  $\Delta BIC$  are well above the threshold value of 10 commonly adopted (Raftery, 1993; Burnham & Anderson, 2002) and hence provide additional evidence to omit the alternative model for consideration.

## **7.9 Summary**

This chapter focussed on the development of the structural model to examine the validity of path relationships to support the main argument of the positive effects of EPRI on ELOYALTY through the individual dimensions of relationship quality (ETRUST, ERS and EAC). The first section examined model fit through goodness-of-fit indices and suggested good to very good model fit across both sectors and all countries. The second section examined the inclusion of control variables (Age, Gender and Income) in the analysis and found no confounding effects. These variables were therefore excluded in the subsequent analysis to maintain a parsimonious model. This was followed by invariance testing at the structural level to additionally confirm the robustness of results. Structural path invariance was evident across all four countries using nested model comparisons, providing confidence in the results across the groups. Structural invariance of means and intercepts was not established and only highlighted the non-homogeneity of groups and not considered problematic. The next section included bootstrapping tests



at the structural level, to examine the robustness of the ML estimation technique and included both naïve bootstrapping and the Bollen-Stine method. Both tests established the robustness of the ML estimation technique given the non-normal data distribution and provided justification for the inclusion on the ML estimation technique in the analysis. Path estimates were then individually examined and provided support for hypotheses H1 to H3 and H6 to H8, across both sectors and all countries. Support for hypotheses H4 to H5 was more inconsistent. The following section examined the moderating influence of consumer cosmopolitanism, product category involvement and national culture using the index of moderated mediation and simple slopes analysis. Results suggest varied support for H9c, H10a<sub>2</sub>, H10c across the countries and sectors, with more consistent support for H11a, reflecting the impact of all three moderators to varying degrees. Finally, alternative model testing was undertaken and the hypothesised model was shown to be superior across a range of fit indices. The next chapter discusses the results from the hypotheses in more depth.

## **CHAPTER EIGHT**

### **8.0 DISCUSSION**

#### **8.1 Introduction**

In this chapter, results emerging from the previous statistical analysis are examined within the framework of hypothesised relationships. Hypotheses ranging from H1 to H11 are individually discussed in relation to the relevant literature in the area. This provides a foundation for the next section in addressing the main research question – ‘How does the reciprocating behaviour of consumers resulting from online perceived relationship investment affect online loyalty formation across countries and sectors?’ The magnitude of the individual effects of EPRI on ETRUST, ERS and EAC are examined allowing comparisons to be made across countries and sectors addressing relationships in the first section of the conceptual model (concentrating on the effects of the independent variable EPRI on ETRUST, ERS and EAC). The relationships in the second section of the conceptual model (concentrating on the effects of ETRUST, ERS and EAC on the dependent variable ELOYALTY) are examined in a similar fashion. Hence, the magnitude of the individual effects of ETRUST, ERS and EAC towards ELOYALTY are made through a comparative approach. Main arguments centred on the positive influence of EPRI on ELOYALTY through relationship quality are further addressed alongside the moderating effects of consumer cosmopolitanism, product category involvement and national culture on these relationship pathways. The next section considers the theoretical implications of this study within the context of relationship marketing, relationship quality and reciprocity theories. The following section identifies contributions of this study in better understanding online loyalty formation and the mechanisms that facilitate its development.

## 8.2 Discussion of Results

Results are discussed along three themes (i) the effect of EPRI on ETRUST, ERS and EAC, (ii) the effect of ETRUST, ERS and EAC on ELOYALTY alongside their interrelationships and (iii) moderating influences. Comparisons of these relationships are additionally made across countries and sectors exposing the mechanisms of online loyalty formation in a variety of different settings. Discussions are based on results from hypothesised relationships in the China, India, UK, US and ALL datasets and clothing and electrical sectors. Hypotheses H1 to H8 are presented again at the beginning of this chapter for convenience. See Table 8.1.

**Table 8.1 Hypotheses H1 to H8**

<b>Clothing</b>											
Hyp	Path	ALL	China	India	UK	US					
H1	EPRI - ETRUST	0.52 (.40) <i>Accepted</i>	0.70 (.71) <i>Accepted</i>	0.58 (.48) <i>Accepted</i>	0.40 (.25) <i>Accepted</i>	0.57 (.45) <i>Accepted</i>					
H2	EPRI - ERS	0.25 (.18) <i>Accepted</i>	0.23 (.20) <i>Accepted</i>	0.23 (.19) <i>Accepted</i>	0.29 (.17) <i>Accepted</i>	0.33 (.24) <i>Accepted</i>					
H3	EPRI - EAC	0.54 (.69) <i>Accepted</i>	0.54 (.67) <i>Accepted</i>	0.40 (.47) <i>Accepted</i>	0.54 (.63) <i>Accepted</i>	0.39 (.53) <i>Accepted</i>					
H4	ETRUST - ELOYALTY	0.17 (.22) <i>Accepted</i>	<b>0.14 (.15) <i>Rejected</i></b>	<b>0.08 (.10) <i>Rejected</i></b>	0.37 (.53) <i>Accepted</i>	<b>-0.02 (-.03) <i>Rejected</i></b>					
H5	ERS - ELOYALTY	0.28 (.39) <i>Accepted</i>	0.24 (.31) <i>Accepted</i>	<b>0.16 (.20) <i>Rejected</i></b>	<b>0.05 (.07) <i>Rejected</i></b>	0.50 (.68) <i>Accepted</i>					
H6	EAC - ELOYALTY	0.41 (.32) <i>Accepted</i>	0.50 (.45) <i>Accepted</i>	0.62 (.56) <i>Accepted</i>	0.41 (.32) <i>Accepted</i>	0.36 (.27) <i>Accepted</i>					
H7	ETRUST - ERS	0.64 (.59) <i>Accepted</i>	0.67 (.57) <i>Accepted</i>	0.67 (.67) <i>Accepted</i>	0.55 (.51) <i>Accepted</i>	0.57 (.54) <i>Accepted</i>					
H8	ERS - EAC	0.20 (.35) <i>Accepted</i>	0.27 (.39) <i>Accepted</i>	0.53 (.76) <i>Accepted</i>	0.15 (.29) <i>Accepted</i>	0.26 (.47) <i>Accepted</i>					
<b>Electrical</b>											
Hyp	Path	ALL	China	India	UK	US					
H1	EPRI - ETRUST	0.55 (.44) <i>Accepted</i>	0.67 (.68) <i>Accepted</i>	0.69 (.54) <i>Accepted</i>	0.46 (.32) <i>Accepted</i>	0.61 (.55) <i>Accepted</i>					
H2	EPRI - ERS	0.33 (.26) <i>Accepted</i>	0.41 (.35) <i>Accepted</i>	0.31 (.28) <i>Accepted</i>	0.27 (.18) <i>Accepted</i>	0.43 (.38) <i>Accepted</i>					
H3	EPRI - EAC	0.54 (.72) <i>Accepted</i>	0.60 (.61) <i>Accepted</i>	0.37 (.43) <i>Accepted</i>	0.49 (.60) <i>Accepted</i>	0.42 (.70) <i>Accepted</i>					
H4	ETRUST - ELOYALTY	0.24 (.26) <i>Accepted</i>	<b>0.06 (.06) <i>Rejected</i></b>	0.22 (.23) <i>Accepted</i>	0.28 (.31) <i>Accepted</i>	0.27 (.33) <i>Accepted</i>					
H5	ERS - ELOYALTY	0.47 (.52) <i>Accepted</i>	0.28 (.31) <i>Accepted</i>	0.55 (.49) <i>Accepted</i>	0.43 (.49) <i>Accepted</i>	0.45 (.56) <i>Accepted</i>					
H6	EAC - ELOYALTY	0.22 (.14) <i>Accepted</i>	0.54 (.51) <i>Accepted</i>	0.17 (.12) <i>Accepted</i>	0.22 (.14) <i>Accepted</i>	0.17 (.12) <i>Accepted</i>					
H7	ETRUST - ERS	0.59 (.58) <i>Accepted</i>	0.55 (.47) <i>Accepted</i>	0.61 (.71) <i>Accepted</i>	0.63 (.61) <i>Accepted</i>	0.44 (.43) <i>Accepted</i>					
H8	ERS - EAC	0.13 (.22) <i>Accepted</i>	0.26 (.30) <i>Accepted</i>	0.36 (.46) <i>Accepted</i>	0.20 (.37) <i>Accepted</i>	0.19 (.36) <i>Accepted</i>					
Latent variables: ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online relationship investment)											
Hyp (Hypotheses) H1 - H8 Accepted 95% significance level $p \leq 0.05$											
Standardised path estimates, unstandardised path estimates in parentheses											

### 8.3 Effects of e-tailer Investments (EPRI) H1, H2, H3

The first theme examines the effect of EPRI on ETRUST, ERS and EAC and is addressed through hypotheses H1, H2 and H3. This area additionally considers the magnitude of the effect of EPRI on the individual dimensions of relationship quality and is highlighted in the first section of the conceptual framework.

***H1: EPRI will have a positive effect on ETRUST***

***H2: EPRI will have positive effect on ERS.***

***H3: EPRI will have a positive effect on EAC.***

First, results suggest strong support for the positive effects of e-tailer investments on each of the individual dimensions of relationship quality. This is an important finding in further understanding B2C online loyalty formation from an online relationship quality theoretical context. While the vast majority of relationship investment studies originate from the B2B literature (Kumar et al., 1995; Smith & Barclay, 1997; Hart & Johnson, 1999; Cox et al., 2005), these results align with the limited available studies based in the B2C environment. Findings support the argument perceived relationship investments have a positive effect on relationship quality and loyalty (De Wulf et al., 2001; Mimouni-Chaabane & Volle, 2010), and more importantly in an online B2C context (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013).

Second, results indicate the magnitude of the effect of EPRI on the individual dimensions of relationship quality varies. This suggest the effects of EPRI are context specific and are more likely to vary across countries and sectors. Examining relationship quality as a disaggregated construct provides further insight into the impact of EPRI on ETRUST, ERS and EAC and departs from previous studies that have commonly focused on relationship quality as an aggregate construct (De Wulf et al., 2001; Yoon et al., 2008;

Mimouni-Chaabane & Volle, 2010; Park & Kim, 2014). Significantly, this study provides empirical evidence to support the value of EPRI towards building relationship quality and ELOYALTY across countries and sectors. The mechanisms facilitating online loyalty formation can further be explained through positive reciprocal exchanges. Positive investments made by e-tailers towards the consumer relationship may be rewarded with higher levels of relationship quality through ETRUST, ERS and EAC and in turn affect ELOYALTY. While the nature of these investments may vary, the perception of actively contributing in the relationship seems to lead to a reciprocal response from consumers, manifesting in higher levels of ELOYALTY.

Addressing a gap in the literature, there is strong evidence to suggest that the positive effect of EPRI is valid across a range of country and sector settings. This is evident at a country level (China, India, UK and US), aggregate (ALL) and at a sector level (clothing and electrical sectors). However, although the effect of EPRI may be evident in a number of different settings, findings suggest the magnitude of the effect of retailer investment varies across countries and sectors. An overview of the magnitude of effects can be seen in Table 8.2. The individual dimensions of relationship quality are ranked in order of path relationship strength, with the strongest effects placed at the top, with the weakest effect at the bottom. Path relationships related to the first section of the conceptual model, between EPRI and ETRUST, EPRI and ERS and EPRI and EAC are shown.

**Table 8.2 Magnitude of effects (EPRI, ETRUST, ERS and EAC).**

Effect Strength	ALL	China	India	UK	US
	Path	Path	Path	Path	Path
<b>Clothing</b>					
High	EPRI - EAC (0.54)	EPRI - ETRUST (0.70)	EPRI - ETRUST (0.58)	EPRI - EAC (0.54)	EPRI - ETRUST (0.57)
Medium	EPRI - ETRUST (0.52)	EPRI - EAC (0.54)	EPRI - EAC (0.40)	EPRI - ETRUST (0.40)	EPRI - EAC (0.39)
Low	EPRI - ERS (0.25)	EPRI - ERS (0.23)	EPRI - ERS (0.23)	EPRI - ERS (0.29)	EPRI - ERS (0.33)
<b>Electrical</b>					
High	EPRI - ETRUST (0.55)	EPRI - ETRUST (0.67)	EPRI - ETRUST (0.69)	EPRI - EAC (0.49)	EPRI - ETRUST (0.61)
Medium	EPRI - EAC (0.54)	EPRI - EAC (0.60)	EPRI - EAC (0.37)	EPRI - ETRUST (0.46)	EPRI - ERS (0.43)
Low	EPRI - ERS (0.33)	EPRI - ERS (0.41)	EPRI - ERS (0.31)	EPRI - ERS (0.27)	EPRI - EAC (0.42)
Standardised path estimates shown in parentheses      95% significance at $p \leq 0.05$					
EPRI (online perceived relationship investment), ETRUST (online trust), ERS (online relationship investment), EAC (online affective					

### 8.3.1 Clothing

Results from China, India and the US in the clothing dataset are comparable suggesting the magnitude of effects of EPRI on the individual dimensions of RQ are similar across these countries. The strongest effects seen in China, India and the US are between EPRI and ETRUST (standardised co-efficient values of 0.70, 0.58 and 0.57 respectively), followed by EPRI and EAC (standardised co-efficient values of 0.54, 0.40 and 0.39 respectively) and lastly EPRI and ERS (standardised co-efficient values of 0.23, 0.23 and 0.33 respectively). Surprisingly the results are different in the UK, with the strongest effects between, EPRI and EAC (0.54), followed by EPRI and ETRUST (0.40) and lastly EPRI and ERS (0.29). The ALL dataset interestingly demonstrated similar results to the UK dataset with the strongest effect between EPRI and EAC (0.54), EPRI and ETRUST (0.52) and EPRI and ERS (0.25).

All datasets exhibit the weakest relationship between EPRI and ERS with standardised co-efficients of 0.25 (ALL), 0.23 (China), 0.23 (India), 0.29 (UK) and 0.33 (US). These results could be due to differing expectations of shopping online across the countries. For example the UK is a more developed retail e-commerce market with a higher digital buyer

penetration rate as shown by figures from eMarketer (2018) - UK (79.4%), US (70.3%), China (48.0%), India (27.8%). This suggests UK consumers may have more experience of online shopping in a developed and well regulated e-commerce market and may value EAC with e-tailers more than ETRUST. Therefore, ETRUST may not be as important to consumers given its prior formation and establishment in the online shopping process. Furthermore, UK consumers may feel more protected in a well regulated market alleviating some risks of online shopping and reducing the need to trust e-tailers. In particular mechanisms for compensation and recourse are quite strong and robust for UK consumers with developed legal frameworks in place (Department for Business Energy and Industrial Strategy, *no date*). Therefore, the need to trust e-tailers may not be as high compared to other countries.

In comparison, consumers in China and India may have a greater need to trust e-tailers and so value ETRUST over EAC. This could be due to inconsistencies with service quality and customer service which has been highlighted as an issue due to the lack of regulation of these markets. Essentially if there are any issues with e-tailers in these countries such as product returns and refunds, compensation is more reliant on the attitude of the e-tailer and recourse through official channels potentially difficult (Javalgi et al., 2005; Gong et al., 2013). Furthermore a number of issues surrounding service quality have been attributed to challenges with logistic channels which has proved to be problematic in both India and China (A.T. Kearney, 2011; Deloitte, 2016). Although investment has been made in this area with the expansion of e-tailing logistic warehousing and intelligent devices and platforms in the supply chain, service levels are currently not comparable to the UK and US (Deloitte, 2016; KMPG, 2018). There could therefore be a greater opportunity and need for consumers to develop ongoing trust in China and India.

This could be a reason why investments made by retailers online are reciprocated more and there is a stronger relationship between EPRI and ETRUST in these countries.

However, this does not explain the relationship in the US, as similar results would be expected to the UK given their similarity in terms of e-commerce maturity. Both countries demonstrate an emphasis from e-tailers on positive shopping experiences and the ability to get recourse through official channels for issues arising from shopping online (for example refunds, returns and exchanges). However, according to a global survey on internet security and trust, the US shows one the most significant increases in consumer distrust as an inhibitor to e-commerce. While the US demonstrated an 11% percentage increase of distrust, the UK exhibited a -9% decrease suggesting distrust of online shopping in the UK has fallen (CIGI-Ipsos, 2018). The increasing number of high profile data mismanagement scandals, inefficient personalization and targeting tactics coupled with an overall distrust of larger corporations could explain why US consumers are more distrustful of e-commerce (Kantar TNS, 2017).

### **8.3.2 Electrical**

The results in the electrical dataset are similar to the clothing dataset with the magnitude of effects having a similar order of strength in China, India and the UK (see Table 8.2). The magnitude of effects in the China electrical dataset are similar to the clothing dataset. The strongest effect is between the path EPRI and ETRUST (0.67), followed by EPRI and EAC (0.60) and lastly EPRI and ERS (0.41). A similar order is found in the India electrical dataset which reflects the clothing dataset. The strongest effect is seen on the path between EPRI and ETRUST (0.69), followed by EPRI and EAC (0.37) with the weakest effect between EPRI and ERS (0.31). The UK further demonstrates a similar order of effects. The strongest path in the electrical dataset is between EPRI and EAC



(0.49), followed by EPRI and ETRUST (0.46) with the weakest relationship between EPRI and ERS (0.27). The US electrical dataset on the other hand, shows a slight deviance from the clothing dataset. The electrical dataset shows a slight variation with the order of the magnitude of effects. The strongest effect is seen on the path between EPRI and ETRUST (0.61), followed by EPRI and ERS (0.43) with the weakest effect seen on the path between EPRI and EAC (0.42). The weakest effect in the electrical US dataset is seen between EPRI and EAC (0.42), whereas in the clothing dataset the weakest effect is seen between EPRI and ERS (0.33).

This difference in the US electrical dataset could be attributable to the greater emphasis placed on satisfaction over affective commitment by US consumers when repurchasing electrical products. Similar results are shown in a study examining customer loyalty towards e-tailers in the electrical products sector. Utilising the American Customer Satisfaction Index (ACSI) to measure overall satisfaction, satisfaction is shown as a primary variable affecting customer loyalty (Wu & Ding, 2007). The study by Wu and Ding (2007) additionally highlights US consumers as being more price sensitive when purchasing consumer electrical products. Based on this observation US consumers may prioritise cost savings as a key factor when purchasing and repurchasing electrical products online and be less affected by brand influences. Interestingly this effect only seems evident in the US rather than in China and India. This could suggest consumers in China and India may be more influenced by brand based factors and place greater emphasis on affective commitment when purchasing electronic products rather than satisfaction. This is supported in the wider literature where a number of studies argue consumers in rapidly developing markets such as China and India may perceive global brands (particularly from the West) as more symbolic representations of status and

prestige due to their perceptions of higher quality products (Bhat & Reddy, 1998; Bhardwaj et al., 2010; Godey et al., 2012). This additionally supports findings from Laroche et al., (2018) where higher levels of cosmopolitanism positively affect brand origin recognition which in turn relates to more favourable brand attitudes. These perceptions according to brand origin and country-of-origin effect could result in stronger emotional attachments to brands given their relation to national identity (Fournier, 1998; Verlegh & Steenkamp, 1999). As emotional attachment to global brands may be stronger in China and India this in turn could effect levels of affective commitment and explain why consumers may place a greater emphasis on affective commitment than satisfaction.

In addition some studies argue collectivist countries (China and India) tend to demonstrate higher levels of commitment due to a greater emphasis on social bonding and cohesion (Fischer & Mansell, 2009; Ozdemir & Hewett, 2010; Meyer et al., 2012). Furthermore, this could be affected by the interpretation of satisfaction by consumers. In an online context consumers could evaluate satisfaction in terms of pricing, delivery and order fulfilment rather than on more inclusive features including; web site design, security, usability and reliability. This would be more likely to impact consumers in China and India where the recent development of these e-commerce markets alongside the unstable infrastructure may cause consumers to evaluate satisfaction in terms of order fulfilment and delivery outcomes (Javalgi et al., 2005; Bart et al., 2005; Gong et al., 2013). While these issues are generally addressed well in more mature markets such as the US, they are less favourably met in younger e-commerce markets such as China and India. Although the size of these markets both geographically and demographically impact logistic channels and infrastructure, investments are currently being made to address these concerns (Deloitte, 2016; KPMG, 2018). The UK is a more interesting

example as it is a more mature e-commerce market but similar to China and India displays the weakest EPRI effect on ERS. The low placing of satisfaction in this context could be due to the greater impact of emotional connection and trust with the e-tailer rather than on interpretations of satisfaction. This could imply e-tailer investments based on satisfaction may not be reciprocated as strongly as consumers may demonstrate stronger reciprocation based in emotional appeals. Order fulfilment and delivery processes are fairly robust in the UK given the established e-commerce market and well developed logistics channels, with same day service widely available (Lasisi et al., 2015). Satisfaction based on fulfilment and delivery criteria may therefore not be of prime concern to UK consumers as they are more likely to be satisfied on these criteria. Similarly to the clothing dataset ETRUST may not be of significant concern to UK consumers compared to consumers in China or India due to the established regulatory framework in the UK. Consumers in the UK may therefore consider emotional connections with e-tailers of greater importance and hence e-tailer investments will effect the role of affective commitment more as consumers are more likely to reciprocate on emotional appeals. Further support may be given to this given the reduced overall perceived risks associated with shopping online in the UK (Ueltschy et al., 2004).

#### **8.4 Effects of ETRUST, ERS and EAC on ELOYALTY (H4, H5, H6, H7, H8)**

The second area concentrates on the individual effects of ETRUST, ERS and EAC on ELOYALTY alongside the interrelationships between the individual dimensions of relationship quality. These relationships are presented in the middle and first sections of the conceptual framework and relate to paths between ETRUST, ERS, EAC and ELOYALTY (H4, H5, H6) alongside interrelationships between ETRUST and ERS (H7) and ERS and EAC (H8). The full hypotheses can be seen overleaf.

***H4: ETRUST positively effects ELOYALTY***

***H5: ERS positively effects ELOYALTY***

***H6: EAC positively effects ELOYALTY***

***H7: ETRUST will have a positive effect on ERS***

***H8: ERS will have a positive effect on EAC***

Table 8.3 displays the magnitude of effects of ETRUST, ERS and EAC on ELOYALTY (H4, H5, H6) and illustrates the strength of effects through high, medium and low standardised path estimates.

***H4: ETRUST positively effects ELOYALTY***

Examining H4, results suggest that the relationship between ETRUST and ELOYALTY is not consistent across countries although there seems to be more consistency across sectors (see Table 8.3). In the clothing sector results overall show an insignificant relationship between ETRUST and ELOYALTY. This is evident in China (0.14), India (0.08) and US (-0.02). The UK dataset shows a strong and significant direct relationship (0.37) and the ALL dataset shows a fairly weak but positive and significant path relationship the standardised path estimate (0.17).

**Table 8.3 Magnitude of effects (ETRUST, ERS, EAC and ELOYALTY)**

[illegible]

The standardised path estimates are extremely low in India (0.08) and negative in the US (-0.02). This is an unexpected result and contradicts previous studies that argue the relationship between ETRUST and ELOYALTY may be higher in individualistic countries rather than in collectivist countries (Cyr 2004, Chau et al 2002, Pavlou 2002). However results in the electrical dataset are more consistent and show greater support for the relationship between ETRUST and ELOYALTY across the ALL (0.24), India (0.22), UK (0.28) and US (0.27) datasets with positive and significant relationships. Support is not evident in China (0.06).

This discrepancy could be explained according two different mechanisms. The first mechanism concentrates on the trust-loyalty link in a country context. The results indicate the insignificant relationship between ETRUST and ELOYALTY in China in both the clothing and electrical sectors. This suggests ETRUST does not directly influence ELOYALTY and may indicate other mechanisms relating ETRUST to ELOYALTY. Examining the results in Table 8.1, the clothing sector exhibits stronger standardised path estimates in China for ETRUST and ERS (0.67), ERS and ELOYALTY (0.24) and ERS and EAC (0.27) and EAC and ELOYALTY (0.50). This suggests ERS and EAC both fully mediate the effect of ETRUST on ELOYALTY. The electrical dataset exhibits similar findings. The standardised path estimates in China are stronger between ETRUST and ERS (0.55), ERS and EAC (0.26), EAC and ELOYALTY (0.54) with an insignificant path between ETRUST and ELOYALTY (0.06). This indicates ERS and EAC fully mediate the path between ETRUST and ELOYALTY. The overall results in China suggest no direct link between ETRUST and ELOYALTY but greater support for the indirect effect of ETRUST on ELOYALTY through ERS and EAC in both the clothing

and electrical sectors. Therefore there is support for a full mediation effect of ERS and EAC on the path between ETRUST and ELOYALTY.

These findings could be explained by more specific consumer perceptions and attitudes towards ETRUST in China and in particular the role of uncertainty avoidance (UA). Uncertainty avoidance is highlighted as a cultural dimension in Hofstede's framework (Hofstede, 1983, 2001). Uncertainty avoidance relates to the willingness of a country to take unknown risks and indicates the level of tolerance towards the unknown (Hofstede, 1983, 2001; Karahanna et al., 2013). Further detail can be found in Appendix B. In accordance with Hofstede's country scores China, India, UK and US collectively are considered to demonstrate low levels of UA (Hofstede, 2001). However, within a group comparison China demonstrates the lowest UA score (30), followed by UK (35), India (40) and the US (46), (Hofstede Insights, 2019).

Results are supported by studies in the e-tailing literature that contend UA moderates the trust – loyalty relationship, where higher levels of UA strengthen the relationship between ETRUST and ELOYALTY (Gefen & Heart, 2006; Yoon et al., 2008; Yoon, 2009; Karahanna et al., 2013). Additionally consumers in lower UA countries may have a greater willingness to try new products (Gong, 2009). This could imply lower levels of UA weaken the relationship between ETRUST and ELOYALTY and is evident with no direct relationship between ETRUST and ELOYALTY in the China dataset in both the clothing and electrical sector. This suggests consumers in China are more willing to take unknown risks and are more tolerant of the unknown and hence may be more willing to try new products (Gong, 2009). Therefore trusting an e-tailer in terms of mitigating risks may not be as valued by consumers in China who may be more willing to take unknown risks. Hence, the relationship between ETRUST and ELOYALTY could be insignificant

due to the relative lower uncertainty avoidance of consumers in China and therefore evident in both the clothing and electrical dataset due to general cultural implications.

However while there is similarity across the clothing and electrical sectors in terms of the insignificant link between ETRUST and ELOYALTY in China, this does not explain the insignificant pathway between ETRUST and ELOYALTY in the clothing sector in India (0.08) and the US (-0.02) as shown in Table 8.1. This variance in the results is additionally seen in the electrical dataset where the path between ETRUST and ELOYALTY is in contrast significant in India (0.22) and the US (0.27). The UK in comparison has similar results in both the clothing (0.37) and electrical (0.28) datasets and demonstrates significant standardised path estimates between ETRUST and ELOYALTY in both sectors.

The inconsistency between the India and US datasets in the clothing and electrical sectors could be explained through a second mechanism. Given these results are more context specific in terms of sector are more likely to be associated with types of products in the clothing and electrical sectors and based around functional and hedonic attributes. Results suggest ETRUST may be more valued in purchasing and repurchasing electrical products which could be due to their utilitarian basis. Given consumer decisions are based on more rational and functional appeals consumers may have a greater need to trust e-tailers when buying more complex technical products (Babin et al., 1994; Park & Kim, 2003; Kushwaha & Shankar, 2013). In particular there is a greater emphasis on whether the product functions and fulfils the customer need. Additionally, electrical products may have a higher associated functional perceived risk (not performing to expectation) which could indicate a greater reliance on ETRUST attributes (Kushwaha & Shankar, 2013). ETRUST in this context is based on consumers trusting e-tailers to provide functioning



products and provide avenues for compensation (returns, exchange, fixing faulty items) for any problems associated with product use and reduce functional perceived risk. Therefore ETRUST may be more important to consumers in this sector as it is based on providing confidence and mitigating risk when repurchasing electrical products that may have a higher likelihood of not functioning or performing (Lee & Turban, 2001; Kushwaha & Shankar, 2013; Frassetto et al., 2017). Consumers may be more willing to reciprocate with higher levels of loyalty where forming ETRUST is based on reducing functional perceived risks associated with repurchasing electrical products. Hence, the direct link between ETRUST and ELOYALTY is more evident in the electrical sector in India and US.

In contrast, results in the clothing sector suggest ETRUST may not be as significant when purchasing and repurchasing clothing due to their hedonic nature. Consumers in this instance are more likely to base decisions on emotional and pleasure seeking motivations (Park & Kim, 2003; Michaelidou & Dibb, 2006; Jones & Kim, 2010). Therefore, ETRUST may not be as high a priority in the clothing dataset as the product is more likely to function and perform well initially, with limited instances of product failure or malfunction. The perceived functional risk (of not performing to expectation) is therefore much lower (Kushwaha & Shankar, 2013). The need to trust e-tailers in this context may be based more on mitigating risk with product purchase. Hence, consumers are more likely to return or exchange products due to sizing or preference issues rather than product fault or malfunctions. Therefore the direct link between ETRUST and ELOYALTY may not be as evident as consumers may be more concerned with satisfaction and commitment attributes when purchasing clothing. There is additional support for the full mediation of

effect of ERS and EAC on the path between ETRUST and ELOYALTY in both India and US.

The UK exhibits different results in terms of a significant direct path between ETRUST and ELOYALTY in both the clothing and electrical datasets. This could be more attributable to consumers' experience of online shopping in a well established e-commerce market. Consumers in the UK may already have greater trust in shopping online based on previous interactions in an established formally regulated e-commerce market. Expectations may therefore be more based on less perceived risk with the formation of ETRUST directly related to ELOYALTY. Essentially if consumers have ongoing trust with the e-tailer they are more likely to be loyal to that e-tailer. Additionally there is some support for the partial mediation effect of EAC on the path between ETRUST and ELOYALTY.

***H5: ERS positively effects ELOYALTY***

There is general support for the relationship between ERS and ELOYALTY (H5) across countries and sectors (see Table 8.3). The electrical dataset exhibits more consistent results and shows overall positive and significant standardised path estimates between ERS and ELOYALTY in the ALL (0.47), China (0.28), India (0.55), UK (0.43) and US (0.45) datasets. The clothing sector exhibits more mixed results with support for the relationship between ERS and ELOYALTY reflected in positive and stronger standardised path estimates in the ALL (0.28), China (0.24), and US (0.50) datasets. In contrast, significant relationships between ERS and ELOYALTY are not found in the India (0.16) and UK (0.05) datasets.

Support for the relationships between ERS and ELOYALTY can be found in the wider literature in the online environment that posits satisfaction using the website and in the customer experience will lead to higher levels of ELOYALTY (Wolfenbarger & Gilly, 2002; Zeithaml et al., 2002; Anderson & Srinivasan, 2003; Cyr, 2008). While this research departs from the traditional view of website and customer experience based satisfaction, the focus on relationship satisfaction yields similar results. Along the same lines, consumers who are satisfied in the relationship with the e-tailer based on cumulative experiences are more likely to be loyal to the e-tailer. Interestingly, culture in terms of individualism and collectivism does not seem to have an impact on the relationship between ERS and ELOYALTY. This could be due to the similarity of consumers across countries whereby attitudes towards shopping online may demonstrate greater uniformity, surpassing cultural differences. This could be related to the experience of shopping online which is increasingly becoming homogenised across countries, thereby limiting any potential cultural effects towards e-tailers based on the mechanisms of online shopping.

Consumers may be more similar across countries and due to the transparency of shopping online be more similar in terms of expectations shopping online. Studies have advocated the similarity between shopping behaviours in a cross cultural context (Steenkamp, 2001; Alden et al., 2006; Cleveland et al., 2009). Consumers from more recently developed e-commerce markets such as China and very young markets such as India, may be familiar with expectations and practices of consumers in UK and US markets through more visible interaction channels such as social media. This may facilitate a greater inclination to switch to competitors more readily. Consumers may be more sophisticated in terms of expectations and familiarity with using the Internet and so more likely to raise concerns with service and levels of satisfaction. This mechanism is supported in the

literature through the expectation-disconfirmation theory, where consumers' satisfaction levels online will be affected by prior expectations (Wallace et al., 2004; Flavián et al., 2006; Lankton & Wilson, 2007). Therefore the relationship between ERS and ELOYALTY may be more apparent in the US, China and ALL datasets in the clothing sector as consumers' expectations affect satisfaction in the relationship (Montoya-Weiss et al., 2003; Lankton & Wilson, 2007). This suggests consumers are more likely to exhibit reciprocating behaviour based on positive cumulative satisfaction encounters. The US in particular has a very strong standardised path estimate between ERS and ELOYALTY in the clothing sector (0.50) which could be attributable to strong customer satisfaction levels in this market driven by concerted efforts of maintaining higher levels of e-service quality by e-tailers. This is supported in the wider literature where e-service quality positively effects satisfaction (Kim et al., 2009; Ziaullah et al., 2014; Chen et al., 2015; Gracia et al., 2015).

The clothing sector highlights two instances of insignificant path relationships between ERS and ELOYALTY in the India (0.16) and UK (0.05) datasets as shown in Table 8.3. While they are both insignificant in the clothing sector, path relationships are both significant in the electrical dataset. The standardised path estimates in the electrical are positive and significant in both the India (0.55) and UK (0.43) datasets. This suggests the relationship between ERS and ELOYALTY is context specific in terms of product sectors in India and UK. This could be attributable to the competitive factors in the sectors where UK and India consumers may more readily switch between clothing e-tailers. So although consumers may be satisfied in the relationship, this does not automatically translate into higher levels of loyalty. A number of studies argue satisfied consumers do not always materialise into loyal consumers (Anderson & Mittal, 2000; Wu & Ding, 2007). The

maturity and competitiveness of the online clothing market in the UK could provide a more conducive environment for consumers to switch between e-tailers irrespective of positive satisfaction. Similarly in India consumers have a wider range of competitive choices when selecting clothing from online to more traditional bespoke tailoring services which is commonplace in India. Furthermore, there is evidence to suggest a full mediation effect of EAC on the path between ERS and ELOYALTY in India and UK. In comparison the electrical online market is not as fragmented providing UK consumers with fewer online alternatives. A similar situation is present in India with a more selective market of good quality electrical e-tailers available to consumers. Given the more complex nature of electrical products and inherent associated perceived functional risks, UK and India consumers may seek additional support and guarantees which may further impact relationship satisfaction, encouraging consumers to be more loyal with higher levels of satisfaction. Additionally there is support for the partial mediation effect of EAC on the path between ERS and ELOYALTY (although standardised path estimates are slightly weaker on the mediated path from ERS to EAC and EAC to ELOYALTY). Therefore the link between ERS and ELOYALTY may be more evident in the electrical sector as consumers seek to reduce levels of perceived functional risk.

***H6: EAC positively effects ELOYALTY***

Results examining H6 are more consistent across all countries and both datasets and there is strong support for the relationship between EAC and ELOYALTY. The standardised path estimates between EAC and ELOYALTY in the clothing sector (Table 8.1) are all positive and significant ranging from; ALL (0.41), China (0.50), India (0.62), UK (0.41) and US (0.36). These findings are reflected in the electrical dataset and although weaker

remain positive and significant with standardised path estimates ranging from; ALL (0.22), China (0.54), India (0.17), UK (0.22) and US (0.17).

While a significant number of online retail studies focus on trust and satisfaction as the main dimensions of relationship quality (Shankar et al., 2003; Anderson & Srinivasan, 2003; Luarn & Lin, 2003; Teo & Liu, 2007; Wu & Ding, 2007; Yoon, 2009), fewer adopt affective commitment (Mukherjee & Nath, 2007; Rafiq et al., 2013). Results suggest the impact of affective commitment is fairly consistent across sectors and countries strengthening the argument for the inclusion of affective commitment as a dimension of relationship quality in the online retailing environment (Vesel & Zabkar, 2010). Additionally these results support findings found in offline studies that argue for the positive relationship between affective commitment and loyalty (Morgan & Hunt, 1994; Garbarino & Johnson, 1999; De Wulf et al., 2001; Fullerton, 2005; De Cannière et al., 2009). These findings could be explained by the strong emotional connection consumers feel towards the e-tailer and as expected, relationships are stronger in the clothing sector compared to the electrical sector.

The results suggest the strength of the relationship between affective commitment and loyalty may be influenced by the sector. Consumers may show more affective commitment to the clothing sector as items purchased are more personal and tie in with issues revolving around self-identity and representation. The positive relationship between affective commitment and loyalty is additionally in line with a number of studies that argue consumer motivations online are not solely based on functional rational drivers but increasingly on emotional and hedonic ones. Consumers may show a greater emotional connection to e-tailers through drivers of enjoyment, excitement and pleasure (Childers, 2001; Menon & Kahn, 2002; Jayawardhena & Wright, 2009).

The interrelationships between ETRUST, ERS and EAC are examined by the hypotheses H7 and H8. The results provide empirical evidence towards the debate on the directionality of the relationships. The magnitude of effects can be seen in Table 8.4.

**Table 8.4 Magnitude of effects (ETRUST – ERS – EAC)**

Effect	ALL	China		India		UK		US	
Strength	Path	Path	Path	Path	Path	Path	Path	Path	Path
<b>Clothing</b>									
High	ETRUST - ERS	0.64	ETRUST - ERS	0.67	ETRUST - ERS	0.67	ETRUST - ERS	0.55	ETRUST - ERS
Low	ERS - EAC	0.20	ERS - EAC	0.27	ERS - EAC	0.53	ERS - EAC	0.15	ERS - EAC
<b>Electrical</b>									
High	ETRUST - ERS	0.59	ETRUST - ERS	0.55	ETRUST - ERS	0.61	ETRUST - ERS	0.63	ETRUST - ERS
Low	ERS - EAC	0.13	ERS - EAC	0.26	ERS - EAC	0.36	ERS - EAC	0.20	ERS - EAC

Standardised path estimates shown      95% significance at  $p \leq 0.05$   
 ETRUST (online trust), ERS (online relationship investment), EAC (online affective commitment)

The results in table 8.4 all show positive and significant results across all countries and sectors, providing support of the directionality of effects from ETRUST → ERS and from ERS → EAC.

***H7: ETRUST will have a positive effect on ERS***

The interrelationships between the individual dimensions of RQ are illustrated by H7 and H8 and examine the paths between ETRUST → ERS and ERS → EAC respectively (see Table 8.4). The path relationship between ETRUST → ERS as shown by H7 is strong and consistent across countries and sectors. The standardised path estimates in the clothing sector are all positive and very strong ranging from; ALL (0.64), China (0.67). India (0.67), UK (0.55) AND US (0.57). This is additionally found in the electrical sector with standardised path estimates all positive and significant ranging from ALL (0.59), China (0.55), India (0.61), UK (0.63) and US (0.44).

This finding adds to the debate on the directionality of the relationship between ETRUST→ERS. A number of studies maintain the directionality of the effect is from satisfaction→trust and argue trust is determined by customer satisfaction based on previous transactions (Yoon, 2002; Flavián et al., 2006; Casaló et al., 2008b). These studies are based on satisfaction around interactions using the website and tend to focus on initial trust. Examining ongoing trust, Gefen (2000) focuses on online satisfaction in the relationship and in line with the previously mentioned studies maintains satisfaction as an antecedent to ongoing trust. In contrast, this study provides empirical evidence for the directionality of the relationship to exist from ETRUST→ERS and supports findings from Singh and Sirdeshmukh (2000), Jin et al. (2008), Rafiq et al. (2013) and Malhotra et al. (2017).

Results from this study contradict a number of existing empirical studies examining relationship quality and provides empirical evidence across a number of datasets that ETRUST is an antecedent to ERS. Additionally results confirm the relationship between ETRUST→ERS across China, India, UK and US and across the clothing and electrical sectors providing further cross validation support. Results could be explained by the focus of the study and the constructs examined compared to previous studies. While most relationship quality studies examine satisfaction and trust, they tend to focus on website satisfaction (Ganguly et al., 2010; Cyr, 2013) and initial trust (Harrison McKnight et al., 2002; Koufaris & Hampton-Sosa, 2004; Cyr, 2008). In contrast, the focus of this study examines the relationship between ongoing trust (ETRUST) and relationship satisfaction (ERS). These differences could account for the disjoint between studies where the directionality of ETRUST towards ERS could be explained by the focus on ongoing rather than initial trust. Consumers need to fulfil successive online interactions successfully



with the e-tailer initially, to generate a certain level of ongoing trust. The ongoing trust developed from these repeat interactions could then influence relationship satisfaction which could ultimately influence online loyalty.

***H8: ERS will have a positive effect on EAC***

Results additionally suggest a fairly uniform relationship between ERS→EAC across China, India, UK and US in the electrical sector and clothing sector. While these relationships are generally weaker than those between ETRUST→ERS, are still significant and provide evidence for the directionality of the relationship. The relationship between ERS→EAC in the clothing sector exhibits positive and standardised path estimates ranging from ALL (0.20), China (0.27), India (0.53), UK (0.15) and US (0.26). Similar results are found in the electrical dataset with positive and significant standardised path estimates between ERS and EAC ranging from ALL (0.13), China (0.26), India (0.36), UK (0.20) and US (0.19).

This study provides empirical evidence to support the relationship between ERS → EAC and has been confirmed in a number of datasets. The reasoning for this could be due to satisfaction in the relationship arising from previous positive interactions which could result in a greater emotional attachment to the e-tailer. Consumers shopping online may use more virtual cues to ascertain their satisfaction in the relationship. While this may be based on cumulative experiences and evidence of ongoing trust, this may also be from customer service encounters, investments made by the e-tailer to enhance the shopping experience and consumer perceptions. As these drivers are more psychological than transaction based, may have a greater affect on emotional attachments hence increase levels of affective commitment. Results from this study suggest ERS influences EAC. This view is further supported by findings from Hennig-Thurau (2000), Rafiq et al. (2013)

and Park & Kim (2003) and extends the positive  $ERS \rightarrow EAC$  relationship in an online international context, providing empirical evidence across China, India, UK and the US and across the clothing and electrical sectors.

### **8.5 Magnitude of Effects ETRUST, ERS, EAC and ELOYALTY**

The effects of ETRUST, ERS and EAC on ELOYALTY have been studied widely in the literature with a range of outcomes. However, the magnitude of the effects have not been studied widely in a comparative manner. Results are shown in Table 8.3 and illustrate the magnitude of the effects (through standardised path estimates) of ETRUST, ERS and EAC on ELOYALTY across countries (China, India, UK and US) and across sectors (clothing and electrical).

#### **8.5.1 Clothing**

The effect strength in the clothing sector is fairly similar across the datasets (Table 8.3). The highest effect strength is seen in the path relationship between  $EAC \rightarrow ELOYALTY$ . The standardised path estimates are ALL (0.41), China (0.50), India (0.62) and UK (0.41). The only dataset to deviate from this pattern is the US dataset which demonstrates the highest strength effect between  $ERS \rightarrow ELOYALTY$  (0.50). As expected with a number of insignificant path relationships, the relationship between  $ETRUST \rightarrow ELOYALTY$  appears with the lowest strength effect in the ALL (0.17), China (0.14), India (0.08) and US (-0.02) datasets. The  $ETRUST \rightarrow ELOYALTY$  relationship appears with a medium effect in the UK (0.37) dataset, highlighting the significant path relationship in this dataset. The UK dataset exhibits the weakest path relationship between  $ERS \rightarrow ELOYALTY$  (0.05) as expected given its insignificant path relationship.

These results suggest the magnitude of effects is context specific and more likely to be influenced by sector and relationship towards the type of products. The clothing sector illustrates generally stronger effects are seen between the EAC→ELOYALTY path (with the exception of the US dataset). This could be attributable to loyalty development based on more emotional bonds (Fullerton, 2005; Evanschitzky et al., 2006). Given the clothing sector is viewed as more hedonic, consumer decisions are based on more emotional appeals which could potentially have stronger connections to EAC (Fullerton, 2005; Michaelidou & Dibb, 2006; Jones & Kim, 2010). Therefore it would be expected the relationship between EAC→ELOYALTY would be the strongest in comparison to ETRUST and ERS towards ELOYALTY. This is supported in the wider literature that argues EAC is positively related to ELOYALTY where consumers demonstrate a willingness to continue the relationship and remain loyal to an e-tailer through emotional attachments (Hennig-Thurau et al., 2002; Fullerton, 2005).

Within an online context clothing is the most popular product category across all four countries highlighting the significance of consumer demand as an influential driver (A.T. Kearney, 2015). There is further evidence to suggest consumers may buy more branded clothing products online and this is particularly evident in China and India where global brands tend to be related to stronger brand attachment due to country of origin effects (Verlegh & Steenkamp, 1999; Burnham et al., 2003; Godey et al., 2012). This could additionally add to emotional attachments consumers feel with clothing e-tailers due to the personal consumption of branded products.

In contrast the US presents the strongest relationship between ERS→ELOYALTY (0.50) in the clothing sector with the relationship between EAC→ELOYALTY (0.36) being of more medium strength. This could be due to consumer attitudes towards clothing and

branded products in the US. Consumers in the US may place less emphasis on hedonistic qualities when online shopping for clothes and not necessarily value emotional attachments as much. Furthermore, given US consumers have experience of online shopping in an established and mature e-commerce market may have different expectations when shopping online. The results suggest US consumers may value satisfaction in the relationship more compared to emotional attachments to the e-tailer. Therefore, the relationship strength between ERS → ELOYALTY is stronger.

The weakest path relationships in the clothing sector are seen between ETRUST → ELOYALTY and correlate with insignificant paths in China (0.14), India (0.08) and US (-0.02) datasets (Table 8.3). The ALL dataset exhibits a significant path but with very low standardised values ALL (0.17). This suggests no direct link between ETRUST and ELOYALTY but the rather the relationship seems to be mediated by ERS. This is evident in the ALL, China and US datasets with strong standardised path estimates between ETRUST and ERS ranging from 0.64, 0.67 and 0.57 respectively (Table 8.1). In contrast, the path between ERS and ELOYALTY in India and the UK is insignificant with standardised path estimates of 0.16 and 0.05 respectively (Table 8.1). These results again suggest the magnitude of the effect size is context specific and related to the sector. Therefore ETRUST and ERS are as not as important in ELOYALTY formation in the clothing sector where EAC is generally more influential. The reason for ETRUST and ERS demonstrating a weaker effect strength could be attributable to the perception of risk in the clothing sector. The associated functional perceived risk may be lower in the clothing sector as the expectation of the product not functioning will probably be fairly low (Kushaha & Shankar, 2013). Therefore, consumers may not be seeking additional assurances of ETRUST and ERS when purchasing clothes online.

**8.5.2 Electrical**

The magnitude of the effects of ETRUST, ERS and EAC towards ELOYALTY is different in the electrical sector, further supporting the contention the effect strength is context specific and influenced by sector (Table 8.3). The strongest strength effect is seen between ERS→ELOYALTY across the ALL (0.47), India (0.55), UK (0.43) and US (0.45) datasets. The exception being the China dataset which highlights the strongest path between EAC→ELOYALTY (0.54). The weakest path effects are seen between EAC→ELOYALTY in the ALL (0.22), India (0.17), UK (0.22) and US (0.17) datasets. In contrast China demonstrates the weakest path between ETRUST→ELOYALTY. This is expected given the insignificant relationship of this path.

Overall the strongest effect is seen on the path between ERS→ELOYALTY. This could be due to the utilitarian nature of the electrical products. Whereby, consumers may be driven by more rational and functional appeals (Park & Kim, 2003). When purchasing and repurchasing electrical products consumers may value functionality and practicality and look at reducing the associated functional perceived risk. Compared to clothing products, electrical products are more complex and tend to have a higher associated functional perceived risk attached to it (Yeo & Park, 2006; Kushwaha & Shankar, 2013). Consumers may therefore value satisfaction where functional perceived risks may diminish over successful cumulative encounters. This could further develop reciprocal behaviours in response to positive interactions. Additionally consumers may be influenced by e-service quality which has been found in a number of studies to have a strong influence on ELOYALTY (Janda et al., 2002; Wolfinbarger & Gilly, 2002; Cyr, 2008; Gounaris et al., 2010; Chen et al., 2015). Given the complex and technical nature of electrical products, consumers may seek additional guarantees from electrical e-tailers.

This could include further product information, mechanisms for returns and exchanges, technical guidelines and helpdesk features.

If consumers are satisfied with cumulative encounters with an e-tailer they are less likely to switch and demonstrate a greater tendency to be loyal to a particular e-tailer. This is supported in a number of studies that maintain consumers tend to more loyal to a particular e-tailer when purchasing utilitarian products compared to hedonic products (Kushwaha & Shankar, 2013). Some studies contend this is due to consumers seeking efficiency when shopping online for utilitarian products which may result in a preference to stay with a particular e-tailer (Novak et al., 2003; Chitturi et al., 2008; Kushwaha & Shankar, 2013). Therefore, consumers may be more loyal to an electrical e-tailer based on previous successful cumulative encounters resulting in higher levels of satisfaction. This could be driven by positive e-service quality and efficiency seeking behaviour, hence the relationship between ERS→ELOYALTY is stronger in the electrical sector.

The exception is China in the electrical sector which demonstrates the strongest relationship between EAC→ELOYALTY (0.54) which is further reinforced in the clothing sector with a standardised path estimate of 0.50. This could be explained by an increasing focus on emotional experiences by consumers in China alongside a diminishing focus on rational experiences (Deloitte, 2016; Gong et al., 2013). This would explain the strength of the effect in the electrical sector where consumers are not necessarily basing purchasing decisions on rational motivations but rather more emotional motivations and so both sectors exhibit similar results. Furthermore, given brand attachment is relatively stronger in China with an increasing demand for luxury products in both the clothing and electrical sectors, emotional aspects of decision making could further be driving this trend (Godey et al., 2012). Emotional experiences in China

are not limited to website atmospherics and design but increasingly towards socialised media, use of communities, virtual reality (VR), augmented reality (AR) and smartphone integration (Deloitte, 2016; Mazaheri et al., 2011; Guo et al., 2015). This reflects a wider trend in China where younger consumers (less than 35) are fuelling the growth of e-tailing who increasingly are influenced by emotional rather than rational experiences when shopping online (Deloitte, 2016).

### **8.6 Moderating Effects (H9, H10, H11)**

The final area reports on the moderating effect of consumer cosmopolitanism, product category involvement and national culture on the relationship paths between EPRI and the individual dimensions of relationship quality (ETRUST, ERS and EAC). These moderating influences provide further insight into online loyalty formation and give an indication of boundary conditions on the effect of EPRI on ETRUST, ERS and EAC. Results are displayed in Table 8.5 again for convenience. Hypotheses H9a, H9b and H9c are presented for the discussion.

#### **8.6.1 Consumer Cosmopolitanism**

***H9a Higher levels of cosmopolitanism strengthen the indirect of effect of EPRI on ELOYALTY through ETRUST.***

***H9b Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ERS.***

***H9c Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through EAC***

Consumer cosmopolitanism has recently emerged in the literature as a potential consumer based segmentation base for international studies and offers an alternative to the traditional national and geographic based segmentation bases based on cultural dimensions. Results suggest consumers with a higher degree of cosmopolitan orientation increase the strength of the relationship between EPRI and ELOYALTY through EAC. This may be due to cosmopolitan consumers valuing investments made by e-tailers more and reciprocating this behaviour with higher levels of loyalty due to individual characteristics of open-mindedness and positive thinking (Yoon et al., 1996; Riefler et al., 2012), which may strengthen emotion based drivers including EAC. This behaviour is repeated across the ALL, China, India and UK datasets in the clothing sector, showing cross-validation support for these findings.



### Table 8.5 Moderation Results H9 – H11

Clothing									
Hypothesis		Moderator (W)	Indirect path (X-M-Y)	ALL	China	India	UK	US	
H9a	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ETRUST	COSMO	EPRI - ETRUST - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected	
H9b	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ERS	COSMO	EPRI - ERS - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected	
H9c	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through EAC	COSMO	EPRI - EAC - ELOYALTY	Accepted	Accepted	Accepted	Accepted	Rejected	
H10a <sub>1</sub>	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ETRUST (in hedonic sectors)	INV	EPRI - ETRUST - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected	
H10b	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ERS	INV	EPRI - ERS - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected	
H10c	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through EAC	INV	EPRI - EAC - ELOYALTY	Accepted	Accepted	Accepted	Accepted	Accepted	
H11a	Collectivist countries strengthen the indirect of effect of EPRI on ELOYALTY through ETRUST	CULTURE	EPRI - ETRUST - ELOYALTY	Accepted					
H11b	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through ERS	CULTURE	EPRI - ERS - ELOYALTY	Rejected					
H11c	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through EAC	CULTURE	EPRI - EAC - ELOYALTY	Rejected					
Electrical									
Hypothesis		Moderator (W)	Indirect path (X-M-Y)	ALL	China	India	UK	US	
H9a	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ETRUST	COSMO	EPRI - ETRUST - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected	
H9b	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through ERS	COSMO	EPRI - ERS - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected	
H9c	Higher levels of cosmopolitanism strengthen the indirect effect of EPRI on ELOYALTY through EAC	COSMO	EPRI - EAC - ELOYALTY	Accepted	Accepted	Rejected	Rejected	Rejected	
H10a <sub>2</sub>	Higher levels of product category involvement weaken the indirect effect of EPRI on ELOYALTY through ETRUST (in functional sectors)	INV	EPRI - ETRUST - ELOYALTY	Accepted	Rejected	Rejected	Accepted	Accepted	
H10b	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ERS	INV	EPRI - ERS - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected	
H10c	Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through EAC	INV	EPRI - EAC - ELOYALTY	Rejected	Rejected	Rejected	Rejected	Rejected	
H11a	Collectivist countries strengthen the indirect of effect of EPRI on ELOYALTY through ETRUST	CULTURE	EPRI - ETRUST - ELOYALTY	Accepted					
H11b	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through ERS	CULTURE	EPRI - ERS - ELOYALTY	Rejected					
H11c	Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through EAC	CULTURE	EPRI - EAC - ELOYALTY	Rejected					
ETRUST (online ongoing trust), ERS (online relationship satisfaction), EAC (online affective commitment), ELOYALTY (online loyalty), EPRI (online relationship satisfaction), COSMO (consumer cosmopolitanism), INV (product category involvement), CULTURE (dimensions of individualism and collectivism)									

Surprisingly, consumer cosmopolitanism does not moderate the relationship in the US. Based on the mean scores of the cosmopolitan construct in the clothing sector consumers in the US do not see themselves as highly cosmopolitan compared to China, India and to some extent the UK, which would affect the moderating role of cosmopolitanism.<sup>2</sup> Given some consumer cosmopolitan construct items are based on travel intentions, this could affect the mean scores.

Some studies argue US customers may be more reluctant to travel abroad due to increased perceived risks which have been found to be associated with higher UA countries (Money & Crotts, 2003; Reisinger & Mavondo, 2006; Kim et al., 2016). Given the US has the highest UA score of (46), compared to China (30), India (40) and the UK (35), national factors could affect attitudes and intentions to travel. Additionally US consumers may prefer domestic brands adopting more ethnocentric tendencies (Shimp & Sharma, 1987). Items on the cosmopolitanism scale refer to consumers' willingness to travel abroad and appreciation of other cultures and so consumers in the US would score lower on these items suggesting overall they are generally considered less cosmopolitan than consumers in the other countries and so any moderating effect of cosmopolitanism would be weak.

Unexpectedly consumer cosmopolitanism does not moderate the effect of EPRI on ELOYALTY through ETRUST or ERS and solely exhibits a moderating effect on EPRI on ELOYALTY through EAC. The importance of EAC could be due to the emotional attachment consumers have with clothing e-tailers and so the moderating effect of consumer cosmopolitanism is stronger on this relationship and in this sector. In contrast,

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<sup>2</sup> Mean score for the consumer cosmopolitanism construct in the clothing dataset: ALL (5.430), China (5.788), India (5.834), UK (5.190), US (5.015)

the moderating effect of consumer cosmopolitanism on the indirect relationship between EPRI and ELOYALTY through EAC is only evident in the ALL and China datasets, in the electrical sector. This suggests the moderating effect of consumer cosmopolitanism seems to be affected by sector. Unlike the clothing dataset this result is not repeated in the India, UK or US dataset which could suggest Chinese consumers may have a stronger emotional connection to electrical products than consumers in India, UK and the US.

Research further suggests consumers in china are more prone to engage in ‘showrooming’ than consumers in other countries – intentionally visiting a physical store before buying online (PWC, 2015). This is particularly common in the electrical product category. Mobile usage to shop online is particularly high, with a recent study by KPMG (2017) suggesting Asian consumers are more than twice as likely (19%) than the global average to shop on a smartphone. To address adverse effects of showrooming (e.g. consumers looking for cheaper products or better offers online while in a physical store), retailers in China are developing more immersive shopping experiences integrating online and offline propositions and digitising physical stores (Click and collect, QR codes, iBeacons, augmented reality etc.). Developing a more enjoyable and seamless shopping experience could impact the emotional connection consumers have with e-tailers supporting studies that advocate the positive gains of showrooming (Sit, 2018). Furthermore, there is an overall moderating effect in the aggregate dataset.

### 8.6.2 Product Category Involvement

*H10a<sub>1</sub> Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ETRUST (in hedonic sectors)*

*H10a<sub>2</sub> Higher levels of product category involvement weaken the indirect effect of EPRI on ELOYALTY through ETRUST (in functional sectors)*

*H10b Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ERS*

*H10c Higher levels of product category involvement strengthen the indirect effect of EPRI on ELOYALTY through ERS*

The moderating role of product category involvement is more influenced by sector. The level of product category involvement has a moderating effect on the relationship between EPRI and ELOYALTY through EAC in the clothing sector across all datasets (ALL, China, India, UK and US) showing strong cross-validation support. Results suggest consumers with higher levels of product category involvement in the clothing sector will strengthen the relationship between EPRI and EAC. This could be due to the greater emotional connection consumers have with e-tailers when purchasing clothing and so will have a larger impact on affective commitment. Given the scale used to measure product category involvement is based on the consumers' individual levels of interest, importance and meaning, it is no surprise consumers who are highly involved in selecting clothing products would also be more emotionally involved. This more hedonic and self-expressionist aspect aligns well with affective commitment highlighting emotional connections. Moreover, this effect is significant across all four countries and the ALL

dataset, suggesting product category involvement affects the relationship between EPRI and EAC similarly with little significant discrepancies between countries.

However, results depict a different situation in the electrical sector and a negative moderating effect is highlighted. Findings suggest higher levels of product category involvement decreases the effect of the relationship between EPRI and ETRUST. Unlike the clothing sector this effect is only evident in the ALL, UK and US datasets and not in the China and India datasets, indicating country differences could be based on the level of maturity of the e-commerce markets and levels of individualism. While this effect may seem counter-intuitive initially, there is some support in the literature that relationship investments may not always be valued positively and could result in a negative effect under certain circumstances (Palmatier et al., 2008). Results suggest consumers in the UK and US may not value e-tailer investments in the electrical products category when involvement is high due to increased levels of perceived functional risk. Given these types of products may be of higher value and more complex, consumers may invest more time and effort in making the right decision and so value more independent and impartial advice. Therefore, e-tailer investments in this context may not provide added value to exchange relationships and may be seen to foster exchange inefficiencies, resulting in a negative effect (Palmatier et al., 2008).

This could explain why EPRI has a weaker effect on ETRUST as consumers seek to minimize risks and vulnerabilities through independent rather than e-tailer sources when re-purchasing electrical products (Lee & Turban, 2001; Kushwaha & Shankar, 2013). Furthermore, UK and US consumers may have had more positive previous interactions with e-tailers when purchasing electrical products due to the maturity of these e-commerce markets and greater protection in terms of consumer rights. Additionally

consumers in these countries may more more readily seek impartial advice with less reliance on e-tailer efforts due to their individualistic nature and focus on self-interest. In turn consumers may not positively reciprocate retailer investments as they are considered to contribute to exchange inefficiencies, providing a lack of added value in the exchange process.

Results from this study reflect aspects in the literature where hedonic and utilitarian products are subjectively decided by the consumer (Hirschman & Holbrook, 1982; Park & Kim, 2003; Kushwaha & Shankar, 2013). Results suggest consumers view product category involvement in the clothing sector more on hedonic needs of pleasure and self-expression. Therefore, highlighting more emotional facets and significantly impacting affective commitment (Mittal & Lee, 1989; Zaichkowsky, 1994; Kushwaha & Shankar, 2013). E-tailer investments may be more valued in these high involvement situations and hence reciprocated with higher levels of loyalty through affective commitment. In contrast consumers view product category involvement in the electrical sector more on utilitarian needs based on function and performance. Therefore signalling efficiency drivers which are more likely to affect ETRUST (Babin et al., 1994; Kushwaha & Shankar, 2013). E-tailer investments in this situation and in more individualistic and developed retail e-commerce markets, may not value e-tailer investments where there are higher levels of involvement preferring to seek impartial advice. This may result in a negative effect on online loyalty through online trust and weaker reciprocal exchanges.

### 8.6.3 National Culture

*H11a Collectivist countries strengthen the indirect of effect of EPRI on ELOYALTY through ETRUST*

*H11b Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through ERS*

*H11c Collectivist countries strengthen the indirect effect of EPRI on ELOYALTY through EAC*

National culture negatively moderates the relationship between EPRI and ELOYALTY through ETRUST and this is evident in both the clothing and electrical sectors. This suggests countries that are higher in collectivism (China & India), have a stronger influence on the effect of EPRI on ELOYALTY through ETRUST than countries with higher levels of individualism (UK & US). Interestingly these results initially seem counter-intuitive to the previous discussions on the direct trust-loyalty link. Findings suggest culture acts a moderating influence on the indirect relationship between EPRI and ELOYALTY through ETRUST. The previous discussions based on the trust-loyalty link focussed on individual country datasets with a number of insignificant path relationships between ETRUST and ELOYALTY found in the clothing dataset (China, India and US) and one in the electrical dataset (China). However, moderation was conducted on the ALL dataset which shows significant relationships between ETRUST and ELOYALTY in the clothing (0.17) and electrical (0.24) datasets and therefore provides support for moderation on the indirect effect of EPRI on ELOYALTY through ETRUST. Support is provided for the moderating effect of national culture on ELOYALTY formation. Findings from this study align well with others that support collectivism as a moderating

influence on online loyalty (Pavlou & Chai, 2002; Gefen & Heart, 2006; Peña-García et al., 2018) .

Consumers from collectivist societies tend to value relationships with others which is further reflected in expectations towards e-tailers. Given the importance and growth of e-tailing in collectivist countries, relationship quality is expected to be even more influential (Samaha et al., 2014). Results support the contention consumers from collectivist countries value the investments made by e-tailers more than consumers from individualistic countries. This could be based on greater behavioural conformity in collectivist countries where e-tailers are expected to adhere to in-group behaviour (Doney et al., 1998). Consumers therefore may demonstrate a greater inclination to trust given the reduced possibility of e-tailers deviating from normal in-group behaviours (Doney et al., 1988). Furthermore, more co-operative behaviours are generally expected from collectivist countries as there is a greater emphasis towards social cohesion and harmony, which could lead to a greater inclination for consumers to reciprocate (Samaha et al., 2014). In line with reciprocity literature consumers may feel a greater tendency to reciprocate positive behaviours shown towards them (Blau, 1964; De Wulf et al., 2001). In this case positive behaviours referring to investments by e-tailers. Additionally, in China the concept of ‘Guanxi’ is closely related to the development of reciprocal relationships which could lead consumers to reciprocate more readily (Wang & Head, 2007; Ozdemir & Hewett, 2010).

Interestingly, national culture only moderates the relationship between EPRI and ELOYALTY through ETRUST which suggests the importance of EPRI on ETRUST and ELOYALTY formation in collectivist countries. This could be due to the recent development and rapid expansion of e-tailing in both China and India. Although



consumers may be familiar with shopping online, trust is still a crucial component in terms of relationship quality development and ongoing trust of particular importance. While e-tailing is more mature and established in the UK and US, consumers have established expectations of interactions with e-tailers, which may not always be the case in China and India. Consumers in these countries still face inconsistencies in terms of delivery, service and returns and so are seeking further validation and cues to develop ongoing trust. While ETRUST may not directly be a predictor of ELOYALTY, EPRI seems to be a better predictor of ELOYALTY through ETRUST. Furthermore, collectivism seems to impact this relationship highlighting the moderating effect of national culture on online loyalty formation.

## **8.7 Summary**

This chapter examined the hypotheses from H1 to H11 centred around the main research question ‘How does the reciprocating behaviour of consumers resulting from online perceived relationship investment affect online loyalty formation across countries and sectors?’ The first part of the discussion related to the effects of EPRI on ETRUST, ERS and EAC as highlighted by H1, H2 and H3. Strong support was found for the effect of EPRI on ETRUST, ERS and EAC across all countries and sectors. This suggests consumers are willing to reciprocate e-tailer investments with higher levels of loyalty. Furthermore the magnitude of the effects are generally similar in both sectors with the strongest relationship evident between EPRI → ETRUST (ALL, China, India and US). The UK is the only dataset to deviate and finds the relationship between EPRI → EAC as showing the strongest effect. This could be attributed to a more established and well regulated market in the UK, suggesting consumers have a reduced need to form ETRUST. In contrast, China and India may value ETRUST more given the inconsistencies in service

quality. E-tailer investments may have a stronger impact on ETRUST. This could also be the case in the US, where greater distrust is shown towards e-commerce. The second part of the discussion related to the effects of ETRUST, ERS and EAC on ELOYALTY (H4, H5, H6). Results are more mixed in this section with only the main relationships summarised. The relationship between ETRUST → ELOYALTY is insignificant in a number of datasets in the clothing sector (ALL, China, India, US) and China in the electrical sector. The relationship between ERS → ELOYALTY is insignificant in the clothing sector (India and UK), but significant in all datasets in the electrical sector. The relationship between EAC → ELOYALTY is the most consistent and significant across all countries and datasets. This suggests ELOYALTY formation is more context specific and affected by sector. Strong support is given to the directionality of relationships between ETRUST → ERS and ERS → EAC across all sectors and datasets (H7 and H8). The last section of the discussion examined moderating effects. Consumer cosmopolitanism is found to moderate the relationship between EPRI and ELOYALTY through EAC in the clothing sector (H9c), suggesting consumers in China, India and UK can be segmented along levels of cosmopolitanism. Product category involvement has a moderating effect on the indirect effect of EPRI on ELOYALTY through EAC in the clothing sector (H10c) and a negative moderating effect on the indirect effect of EPRI on ELOYALTY through ETRUST in the electrical sector (H10a<sub>2</sub>). This suggests reciprocal effects may be affected by hedonic and utilitarian aspects of the sector. Finally, national culture negatively moderates the relationship between EPRI and ELOYALTY through ETRUST in both the clothing and electrical sectors (H11a). This suggested consumers in collectivist countries strengthen the impact of EPRI on ELOYALTY through ETRUST and hence maybe more influenced by e-tailer investments through behavioural conformity.

## **CHAPTER NINE**

### **9.0 CONCLUSIONS**

#### **9.1 Introduction**

In this concluding chapter, results are discussed in relation to the main research question; **‘How does the reciprocating behaviour of consumers resulting from online perceived relationship investment affect online loyalty formation across countries and sectors ?’** Main arguments centred on the positive influence of EPRI on ELOYALTY through the individual dimensions of RQ are explored across all country and sector datasets alongside variations in the magnitude of effects. This is followed by a discussion on the attainment of research objectives initially proposed in the introduction chapter. The next section considers the theoretical implications of this study within the context of relationship quality and reciprocity theories. The following section identifies contributions of this study in better understanding online loyalty formation and the mechanisms that facilitate its development. Practical implications of this study are then reported providing recommendations aimed at e-tailers. The final section addresses limitations of this study with directions for future research.

#### **9.2 Research Question and Objectives**

The main research question is developed around key gaps identified in the current literature. While a limited number of studies examine the effects of online perceived relationship investment on online loyalty in an e-tailing setting (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013), these studies are not able to offer a comparative international perspective. The research question is designed to develop a better understanding of online loyalty formation across countries and sectors and to examine

variations in the magnitude of any effects. This provides unique insight into online loyalty formation across individual significant e-commerce markets including; China, India, the UK and US alongside an additional East and West perspective. Further cross validation support is given through the ALL dataset alongside the provision of empirical evidence to support arguments. Emerging from a reciprocal and relationship quality theoretical underpinning, psychological drivers of online loyalty are focused on. This departs from the general trend in the international online loyalty research stream of studies focusing on functional drivers (Cyr, 2008, 2013). Moreover insight is provided from a theoretical perspective into the effects of reciprocity and relationship quality across countries which is currently lacking. Consumer cosmopolitanism is examined which has not previously been explored and offers a fresh perspective into online loyalty formation in an international context through consumer homogeneity. In addition national culture is explored through Hofstede's dimension of collectivism and provides a consumer heterogeneity perspective (Hofstede, 2001). This study provides a distinctive approach of simultaneously examining consumers across countries through both individual similarities and country differences which is limited in the literature. Product category involvement is additionally examined as a moderating influence addressing another key gap in the literature. The main research question this study therefore seeks to address is:

**How does the reciprocating behaviour of consumers resulting from online perceived relationship investment affect online loyalty formation across countries and sectors?**

The three key objectives developed in Chapter one to answer the research question are discussed below.

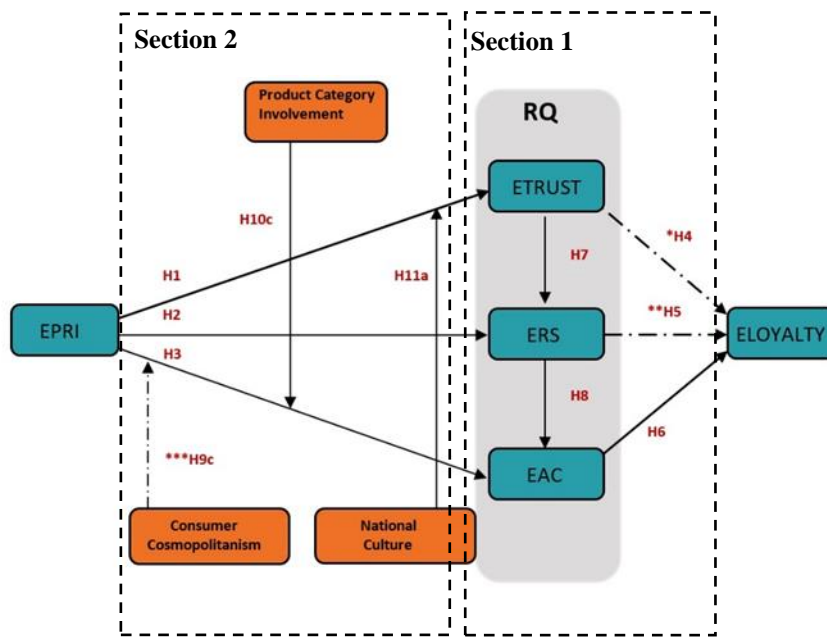
### **9.2.1 Research Objective One**

**Utilise an integrated model examining boundary conditions and the effects of online perceived relationship investment on online loyalty through the individual dimensions of relationship quality and the interrelationships within the dimensions of relationship quality.**

The conceptual model developed for this study is captured in Figure 9.1a for the clothing sector and Figure 9.1b for the electrical sector. The conceptual models are designed to examine the relationships between EPRI on ELOYALTY, through the individual dimensions of RQ comprising of ETRUST, ERS and ERS. Boundary conditions are examined through moderators including; consumer cosmopolitanism, product category involvement and national culture and offer a more integrated model to examine relationships.

The model examines relationship quality from a disaggregated perspective and hence includes individual dimensions of ETRUST, ERS and EAC. Interrelationships are further examined through the antecedent effects of ETRUST → ERS adding to the debate on the directionality of this relationship previously examined in section 2.5.1. The relationship between ERS towards EAC has been less examined empirically. However, based on the wider literature examined in section 2.5.2 the model posits ERS as possessing greater predictive capability towards EAC so bases the direction of the effect from ERS → EAC.

Figure 9.1a Clothing conceptual framework



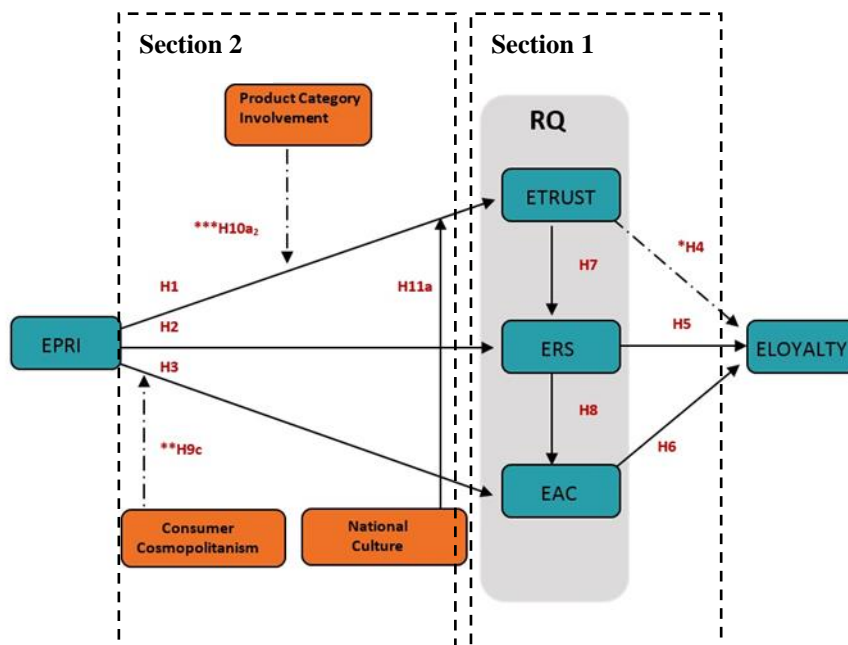
Significant Path in all datasets ———▶

\*(H4) significant in UK    \*(H5) significant in China, US

Significant Path in some datasets - - -▶

\*\*\* (H9c) significant in China, India, UK

Figure 9.1b Electrical conceptual framework



Significant Path in all datasets ———▶

\*(H4) significant in India, UK, US    \*(H9c) significant in China    \*\*\* (H10a<sub>2</sub>) significant in UK, US

Significant Path in some datasets - - -▶

EPRI (online perceived relationship investment), EAC (online affective commitment),

ERS (online relationship satisfaction), ETRUST (online ongoing trust), ELOYALTY (online loyalty)

Strong cross validation support is given for the model in both the clothing and electrical sectors through a range of strong goodness-of-fit indices across all country datasets (as shown previously in Table 7.1). The conceptual models (Figure 9.1a and Figure 9.1b) indicate a number of significant paths in section 2 of the model across all country and sector datasets. These include the relationships between EPRI towards ETRUST, ERS and EAC. Strong support is additionally given on the directionality of the relationship between  $ETRUST \rightarrow ERS$ , alongside  $ERS \rightarrow EAC$  in both sector and country datasets as highlighted in Section 1 in both Figure 9.1a and Figures 9.1b. Moderating effects of consumer cosmopolitanism and product category involvement are not consistent across all datasets whereas national culture shows greater consistency.

Some path relationships are not significant across all countries and sectors and are highlighted in section 1 of the conceptual model in Figure 9.1a and Figure 9.1b. These include the path relationships between  $ETRUST \rightarrow ELOYALTY$  and  $ERS \rightarrow ELOYALTY$ . The path between  $EAC \rightarrow ELOYALTY$  is more consistent across sectors and countries. Further discussion on the variances of these paths is found in the next section discussing objective two. Further support for the model is providing with an alternative model comparison provided in section 7.8. The alternative model based on an aggregate relationship quality model involves second order constructs of RQ based on trust, satisfaction and commitment. Results suggest poorer model fit through goodness-of-fit indices (see Table 7.11). This analysis provides additional support for the proposed conceptual frameworks captured in Figure 9.1a and Figure 9.1b.

### **9.2.2 Research Objective Two**

**Investigate the effects of online perceived relationship investment on online loyalty through individual dimensions of relationship quality, from the theoretical perspective of reciprocity, in a multi-country and multi-sectoral setting.**

The analysis of data provides strong empirical evidence for the positive effects of e-tailer investments on the individual dimensions of relationship quality across all countries and sectors (as shown in section 2 of the conceptual model in Figure 9.1a and Figure 9.1b). This supports findings in a limited number of other studies in an e-tailing context (Wang & Head, 2007; Yoon et al., 2008; Rafiq et al., 2013), but additionally confirms the relationship across four countries (China, India, UK and US) and two sectors (clothing and electrical products). Unlike previous studies empirical evidence is provided on the magnitude of the effects of e-tailer investments on the individual dimensions of relationship quality.

Overall EPRI has the strongest effect on ETRUST across the ALL, China, India and US datasets across both the clothing and electrical sectors. This suggests e-tailer investments are reciprocated by consumers more in relation to trust formation. Therefore, investments made by e-tailers may provide greater confidence to consumers whilst mitigating against risks of interacting with the e-tailer and hence influence online ongoing trust. Consumers in China and India may need to trust e-tailers more given inconsistencies regarding service quality, customer service, delivery and fulfilment alongside a general lack of regulation in these markets (Paul & Mas, 2016; Jain et al., 2017; Yan & Pei, 2018).

In comparison the UK exhibits different characteristics with the strongest relationship between EPRI and EAC. This suggests ETRUST in the UK may not be as significant to



UK consumers given the established, well regulated e-commerce market. Consumers in the UK may be more willing to reciprocate positive behaviors from e-tailers and have a greater willingness to continue the relationship. The US provides different results and shows the strongest effect between EPRI→ETRUST, similar to China and India. Although an established and maturer e-commerce market, evidence suggest consumers in the US are more distrusting of shopping online and may be significantly more likely to reciprocate on e-tailer efforts to form trust (CIGI-Ipsos, 2018). The effect of EPRI→ERS is the weakest across all countries in the clothing dataset and the majority of countries in the electrical dataset with the US displaying a slight anomaly (see Table 7.8). However, path relationships are all positive and significant, suggesting consumers may reciprocate e-tailer investments to confirm positive cumulative encounters.

The effects of the individual dimensions of RQ on ELOYALTY is more diverse (as shown in section 1 of the conceptual framework in Figure 9.1a and Figure 9.1b). Overall, the clothing sector shows insignificant direct relationships between ETRUST→ELOYALTY in China, India and US (see Figure 9.1a). The evidence suggests that ETRUST affects ELOYALTY indirectly through ERS. Additional insignificant direct relationships are found between ERS→ELOYALTY. The electrical dataset overall contains more consistent results with overall significant relationships with the exception of China (insignificant direct relationship between ETRUST→ELOYALTY). Greater consistency is shown regarding the relationship between EAC→ELOYALTY which is significant across all countries and sectors. These results suggest online loyalty mechanisms vary across countries particularly regarding ETRUST and ERS. Therefore, online loyalty formation may be more context specific in terms of sector.

These results are further reflected in the magnitude of effects of individual dimensions on ELOYALTY (Table 8.3). These include the relationships between; ETRUST→ELOYALTY, ERS→ELOYALTY and EAC→ELOYALTY. The relationship between ETRUST → ELOYALTY is seen as exhibiting the weakest effect across China (0.14), India (0.08) and the US (-0.02) in the clothing sector and in China (0.06) in the electrical sector. The clothing sector overall demonstrates the strongest relationship between EAC →ELOYALTY which is found in the ALL (0.41), China (0.50), India (0.62) and UK (0.41) datasets. The electrical sector overall highlights the strongest relationship occurring between ERS→ ELOYALTY and is shown in the ALL (0.47), India (0.55), UK (0.43) and US (0.45) datasets.

This variance could be explained through two mechanisms based on sector and country specific factors. The first mechanism suggests ELOYALTY is influenced by sector and hence is context specific. Sectors that are more hedonic (clothing), are based on consumer decisions emerging from emotional and pleasure seeking motivations (Hirschman & Holbrook, 1982; Jones & Kim, 2010; Kushwaha & Shankar, 2013). This emotional focus is more likely to influence online affective commitment which in turn acts as a stronger predictor of online loyalty. In contrast, sectors that are considered more utilitarian (electrical products) focus on consumer decisions based around functional and rational appeals (Pressey & Mathews, 2000; Kushwaha & Shankar, 2013). Additionally, given the technical and complex nature of electrical products consumers may seek to further reduce functional risk and maintain efficiency when shopping online for this product category (Kushwaha & Shankar, 2013). This rational view is therefore more likely to influence ERS which in turn acts as a stronger predictor of ELOYALTY.

The second mechanism could be more country specific given the anomaly in results found in China ( $EAC \rightarrow ELOYALTY$  clothing (0.50), electrical (0.54)). The relationship between EAC and ELOYALTY in China exhibits the strongest effect in both the clothing and electrical sector (result from Table 8.3). This suggests online loyalty mechanisms may not be context specific but additionally country specific. Consumers in China may value EAC more given its close alignment to emotional drivers when shopping online. Studies suggest e-tailing growth in China is fuelled by emotional rather than rational experiences when shopping online (Mazaheri et al., 2014; Guo et al., 2015; Deloitte, 2016). This effect is further magnified with a strong focus on brand attachment towards global products and consumers may rely more on emotional attachment when shopping online (Godey et al., 2012; Zhou et al., 2012). This could explain why EAC demonstrates the strongest effect in both the clothing and electrical sectors.

Based on the analysis of data results suggest the directionality of the relationship to flow between  $ETRUST \rightarrow ERS$  and  $ERS \rightarrow EAC$  across all countries and sectors (see Figure 9.1a and Figure 9.1b). This study provides empirical support for the argument that ETRUST is an antecedent of ERS (see 7.8). Therefore, consumers who build up ETRUST over previous positive interactions with an e-tailer, will tend to be more satisfied in the relationship (Singh & Sirdeshmukh, 2000; Jin et al., 2008; Rafiq et al., 2013; Malhotra et al., 2017). Similarly, ERS based on previous cumulative encounters is found to positively influence EAC although the relationship strength is weaker. Hence, consumers who are satisfied in the relationship will tend to be more emotionally connected to the e-tailer through higher levels of EAC (Fullerton, 2005) .

### 9.2.3 Research Objective Three

**Investigate the moderating role of consumer cosmopolitanism, product category involvement and national culture on the indirect effect of online perceived relationship investment on online loyalty through the individual dimensions of relationship quality, from the theoretical perspective of reciprocity.**

The research analysis suggests that consumer cosmopolitanism has a moderating effect overall in the clothing sector. This suggests that the higher the level of consumer cosmopolitanism the stronger the influence on the indirect effect of EPRI on ELOYALTY through EAC (see Table 7.10). Cosmopolitan consumers may value e-tailer investments more and hence reciprocate with higher levels of loyalty, due to individual characteristic of open mindedness and positive thinking and hence more likely to form stronger emotional connections. Coupled with a greater receptiveness and willingness to purchase foreign products cosmopolitan consumers could be more likely to be loyal to e-tailers due to stronger emotional bonds.

The moderating role of product category involvement is context specific as expected and hence influenced by sector. Consumers with higher levels of product category involvement strengthen the relationship between EPRI and ELOYALTY through EAC (see Table 7.10). This suggests consumers who are highly involved in selecting clothing products base decisions on more hedonic appeals and hence tend to be more emotionally involved. Therefore, a significant moderating effect is found through the indirect effect of EAC. Strong cross-validation support is given with this moderating effect occurring in all country datasets and the ALL dataset. In contrast a negative moderating effect is found in the electrical sector and only applies to the UK and US (additionally the ALL dataset). This suggests higher levels of product category involvement decreases the indirect effect

of EPRI on ELOYALTY through ETRUST. Highly involved consumers in the UK and US do not necessarily value e-tailer investments when purchasing electrical products (functional sector) and may favour more independent and impartial advice where perceived functional risk is relatively higher. Within this specific context, e-tailer investments may contribute to exchange inefficiencies as consumers do not see value gains in the exchange process, resulting in a negative effect of online loyalty through online trust. The evident country differences could be based on the level of maturity of the e-commerce markets and individualistic consumer attitudes to repurchasing electrical products.

Collectivism (national culture) is shown to negatively moderate the indirect effect of EPRI on ELOYALTY through ETRUST in both the clothing and electrical sector. Moderation is conducted on the ALL dataset which shows significant direct relationships between online ongoing trust and online loyalty and therefore highlights significant interactions. Collectivist countries (China and India) demonstrate a stronger moderating influence (see Table 7.10). This suggests consumers from collectivist countries may value e-tailer investments more than consumers from individualistic societies (UK and US) and hence may be more likely to reciprocate with higher levels of loyalty. This could be attributable to greater co-operative behaviours from consumers in collectivist countries who tend to value social cohesion and harmony and may be more inclined to reciprocate positive behaviours with loyalty. Furthermore, given the inconsistencies of service quality (delivery, exchanges, returns and customer service) consumers in China and India may value e-tailer investments towards trust more in an attempt to seek further validation and cues.

#### **9.2.4 Research Question**

Drawing on the previous discussions based on the individual research objectives attention is now focused on the main research question.

**How does the reciprocating behaviour of consumers resulting from online perceived relationship investment affect online loyalty formation across countries and sectors?’**

In addressing this question, special attention is paid to the reciprocating behaviour of consumers towards positive e-tailer investments. This is further examined through the individual dimensions of RQ comprising of ETRUST, ERS and EAC and the magnitude of these effects towards ELOYALTY.

The research analysis suggests consumers reciprocate positive e-tailer investments across countries and sectors which affect individual dimensions of ETRUST, ERS and EAC which in turn influence ELOYALTY. Consumers are more likely to reciprocate positive behaviours from e-tailers in forming ETRUST through increased confidence and reduced risk perceptions. Positive reciprocal exchanges enhance ERS by creating affirmative cumulative encounters. E-tailer investments additionally contribute to positive reciprocal exchanges and contribute to a willingness to continue the relationship and so influence EAC. A key distinction is drawn between reciprocity based on ‘desire’ and ‘obligation’. Reciprocity based on ‘desire’ creates more positive interactions enhancing relationship quality and long term relationships. In contrast reciprocity based on ‘obligation’ may make consumers feel constrained in the relationship and may be more likely to create weaker long term relationships.

However, the magnitude of the effect on the individual dimensions of ETRUST, ERS and EAC is context specific and varies by country. The disaggregated model of relationship quality provides further insight and highlights variances across countries and sectors. Consumers in the clothing and electrical sector value ETRUST more in China, India and the US whereas consumers in the UK value EAC more. The directionality between the individual dimensions of relationship quality is driven from ETRUST→ERS and ERS→EAC. The results provided from this study suggest the effects of e-tailer investments are fairly consistent across China, India, UK and US and across both the clothing and electrical sectors providing strong cross-validation support.

Finally, moderating influences are evident but again context specific. Consumer cosmopolitanism shows a uniform moderating effect in the clothing sector, with EAC most affected across all four countries. Reciprocal exchanges may be more influenced by characteristics of open-mindedness and positive thinking. The moderating effect is less uniform in the electrical sector with only China affected. Product category involvement has substantially different moderating effects between the clothing and electrical sectors. The clothing sector shows a consistent positive moderating effect across China, India, UK and US with EAC most influenced. The clothing sector is driven by more hedonic appeals suggesting reciprocal exchanges may be more influenced by personal involvement and meaning and hence more likely to affect emotional attachments. In contrast the electrical sector shows a negative moderating effect in the UK and US significantly affecting ongoing trust. Reciprocal exchanges in these situations seem to be influenced by risk reducing and exchange inefficiency perceptions. E-tailer investments may not always be valued in certain situations and may have a negative effect if consumers do not see any added value in the exchange. National culture through

collectivism shows a moderating effect on the relationship between e-tailer investments and trust in both the clothing and electrical sectors. Collectivist countries may value reciprocal exchanges more due to behavioural conformity and maintenance of social ties.

### **9.3 Theoretical Implications**

Theoretical and empirical contributions are discussed in the next section addressing gaps in the literature. While the growth of e-tailing has significantly increased over the years with significant developments in global e-commerce markets (eMarketer, 2018), academic research in this area has not developed at the same pace, highlighting a need to further understand online loyalty formation in an international context. Previous research has focused on understanding online loyalty through relationship quality and various constructs including trust, satisfaction and commitment. However, this research is considered fragmented and does not extend to international contexts (Athanasopoulou, 2009). In response, a number of studies have called for further empirical research to investigate relationship quality across a variety of contexts and within an international framework (Toufaily et al., 2013; Samaha et al., 2014; Verma et al., 2016). While most relationship quality literature adopts a US centric stance little empirical evidence exists on understanding relationship quality frameworks in various international settings. This study addresses this gap by examining relationships in various international and retail contexts alongside various moderating influences (Gefen & Heart, 2006; Athanasopoulou, 2009; Toufaily et al., 2013; Samaha et al., 2014; Gracia et al., 2015; Frasquet et al., 2017).



**The first theoretical contribution this study makes is the utilisation of an integrated conceptual model incorporating boundary conditions alongside the effects of online perceived relationship investment (EPRI) on the individual dimensions of relationship quality.** This more comprehensive model allows for an examination of relationships previously not explored in the online loyalty literature to address concerns mentioned earlier. While online trust has frequently been examined by researchers as a relational mediator, this has focused on initial trust rather than ongoing trust and studies involving affective commitment are substantially less (McKnight et al., 2002; Kim et al., 2017). This study advances knowledge in the area of online loyalty by (i) individually examining relationship quality dimensions including affective commitment which is not commonly included in relationship quality studies, (ii) examining online perceived relationship investment as an antecedent to online loyalty which has not been widely investigated and (iii) incorporating moderating factors which are not commonly included in international online loyalty studies. Building on the framework used in Rafiq et al. (2013) a more comprehensive conceptual model is developed integrating moderating influences. This study is the first of its kind to specifically extend this in a multi-country and multi-sector setting, providing unique insights into global e-commerce markets and sectors. Furthermore, this study incorporates the use of ten datasets to cross-validate findings facilitating a more robust analysis.

**Second, this study finds e-tailer investments positively effect online loyalty formation through the individual dimensions of relationship quality across countries and sectors.** This study is able to contribute to the limited literature in the area of online perceived relationship investment and offers valuable insight into online loyalty formation. More importantly this study draws attention to retailer and consumer relationships through psychological drivers in an international and sectoral context. This is particularly pertinent given the increase in online shopping internationally and the increasing homogenisation of e-tailer shopping platforms and websites (eMarketer, 2018). While relationship investment has often been cited as a key component to relationship building, these studies have predominantly focused on supplier relationships in an offline context (Kumar et al., 1995; Gruen et al., 2000). An understanding of these mechanisms is further needed in different contextual settings. Hence, this study provides much sought after insight into the e-tailing sector and in particular towards consumer rather than supplier relationships. This study is the first to compare the effects of online perceived relationship investment on online loyalty across a range of different e-commerce markets both geographically, culturally and in terms of maturity. The theoretical contribution of this study is based on the inclusion of e-commerce markets including China, India, UK and US, alongside sectors of clothing and electrical products providing a broader multi-contextual perspective on understanding online loyalty. Additionally this study is the first to examine psychological drivers of online loyalty in an e-tailing and international context providing new perspectives for e-tailers to compete more effectively.

Literature regarding online perceived relationship investment and online loyalty in a retailing setting is extremely limited with only three other studies to the authors

knowledge. Previous studies have focussed on Western based single country studies with e-commerce markets that have tended to be mature and well developed, offering a narrow contextual perspective; Rafiq et al. (2013) examines the online grocery sector in the UK, Wang and Head (2007) investigate the online CD/DVD market in Canada, while Yoon et al. (2008) studies online shopping in the US. This study provides empirical evidence to support the argument that positive effects of e-tailer investments affect the individual dimensions of relationship quality. This is evident not only across Western more mature e-commerce markets such as the UK and US but also across newer and rapidly developing e-commerce markets including China and India. These results are further evident across two different sectors.

**Third, this study examines RQ from a disaggregated approach and provides a ranking of the magnitude of individual effects across countries and sectors.** This study offers valuable empirical evidence on the magnitude of the effects of online perceived relationship investment on the individual dimensions of relationship quality across countries and sectors. Limitations of analysing relationship quality at an aggregate level are addressed in this study by purposefully examining relationship quality as a disaggregated construct. A more specific understanding of individual dimensions is given across different contexts which is lacking in the international research stream. Given individual dimensions of RQ (trust, satisfaction and commitment) are more likely to vary across countries due to cultural considerations (Samaha et al., 2014), this study provides insight into these variances from both an aggregate and individual level view of culture. Results from this study additionally provide support for arguments on the directionality of interrelationships between the individual dimensions which is strongly debated in the literature. Findings from this study contradict previous studies, that maintain the

directionality of paths stem from satisfaction→trust (Chiu et al., 2012) and commitment→satisfaction (Elbeltagi et al., 2016). This study provides empirical evidence across ten datasets that the directionality flows from trust→satisfaction and satisfaction→commitment.

Taking into consideration the findings highlighting the effect of e-tailer investments on ETRUST, ERS and EAC (from Chapters seven and eight), this study is able to identify which of these dimensions e-tailer investments affect the most and rank the magnitude of the effects. More importantly comparisons are able to be made on the magnitude of these effects across countries and sectors. Empirical evidence is provided on the variances of these relationships across countries and sectors. While previous studies have shown a link between trust→loyalty in the UK, this study further confirms this relationship in China but not in the UK and US in the clothing sector. This link is further shown in the electrical sector in India, UK and US but not in China. Similarly, the satisfaction →loyalty link is particularly not significant in the UK in the clothing sector but relatively significant across the other countries and sectors. The affective commitment → loyalty link is fairly stable across all countries and sectors. Previous studies have not been able to offer empirical evidence to support country and sector comparisons collectively which this study is able to do.

**Fourth, consumer cosmopolitanism, product category involvement and national culture are found to have a moderating influence on online loyalty formation.**

Athanasopoulou (2009) calls attention to the lack of studies in the relationship quality literature incorporating moderating influences. This study extends the literature in this area by examining consumer cosmopolitanism, product category involvement and national culture (collectivism) as moderating factors surrounding relationship quality and

online loyalty formation. Consumer cosmopolitanism as a moderator has never extensively been examined in the relationship quality and online loyalty literature within an international framework and this is the first study to the researchers knowledge that incorporates consumer cosmopolitanism as a moderator in this field. The inclusion of this emerging construct provides empirical evidence for its use as an alternative segmentation technique and offers a fresh perspective on online loyalty formation. This study extends the literature on consumer cosmopolitanism and how it influences online loyalty and further offers empirical evidence on consumers' degree of cosmopolitan orientation in India, China, US and UK.

The moderating effect of product category involvement has not been extensively explored in the online and international loyalty research stream, which this study addresses. A greater focus is given to its inclusion as a construct (Jones & Kim 2010) or control variable (Frasquet et al., 2017). This study is the first to provide an examination of the moderating effect of product category involvement on the relationship between online relationship investment and online loyalty through the individual dimensions of relationship quality. Hence, this research draws attention to the interaction between product category involvement and relationship quality which is lacking in the research stream (Gordon et al., 1988). The analysis of data shows product category involvement has various influences that are context and country specific. Therefore, this study is able to contribute to the literature by offering specific detail on the variations of product category involvement as a moderating influence across countries and sectors. More specifically this study additionally draws attention to positive and negative moderating effects of product category involvement.

As the role of national culture (collectivism) has not been examined as a moderating influence on relationships involving e-tailer investments and individual dimensions of RQ, this research inquiry incorporates national culture through collectivism as a moderator (Hofstede, 2001). Furthermore, results from this study add to the debate in the literature on the moderating influence of culture on trust through dimensions of individualism and collectivism (Yoon, 2009; Pavlou & Chain 2002). In contrast to claims of Yoon (2009), Frost et al., (2009) and Chen et al., (2015) pointing out that culture, captured through the dimensions of individualism and collectivism, does not have a moderating effect on online trust, this study provides empirical evidence to support the opposite.

This study adopts a distinctive approach by conducting a multi-country examination using both aggregate (national culture) and individual level (consumer cosmopolitanism) frameworks and offers a more comprehensive view of consumers across countries. Examining culture from an aggregate perspective through Hofstede's dimension of collectivism (Hofstede, 2001), results show the moderating influence of collectivism on trust based relationships. In contrast examining countries on an individual basis results show the moderating effect of consumer cosmopolitanism on affective commitment based relationships. The number of studies adopting this dual focus are extremely limited with none to the researchers knowledge focusing on loyalty formation (Lim & Park, 2013). Advocating this novel approach contributes to the literature by simultaneously examining consumers across countries through both homogenous and heterogeneous perspectives.

**Fifth, this study makes an empirical contribution to the literature and presents empirical evidence based on consumer surveys on the impact of online perceived relationship investment on relationship quality and online loyalty, across different countries and sectors.** A substantial dataset of 1010 usable responses is used providing for more robust analysis and cross-validation. Previous studies examining online relationship investment have provided much smaller datasets in single countries ranging from 177 in Wang & Head (2007), 268 in Yoon et al. (2008) and 491 in Rafiq et al. (2013), offering a narrower insight. Previous studies in the online loyalty literature have tended to examine moderating influences using multi-group methods which have a number of limitations. This study advances methodological practices in the online loyalty literature employing conditional process analysis and the use of confidence intervals to examine moderating effects providing more robust analysis. Additionally, this study provides a newly constructed PROCESS model involving 3 parallel mediators previously not available from the 96 ready-made PROCESS models.

#### **9.4 Managerial Implications**

These results have practical implications for e-tailers and are able to provide further insight into resource allocation formulating more effective strategies in developing online loyalty. Findings from this study confirm the importance of e-tailer investments in forming stronger relationships with consumers to improve e-loyalty and empirical evidence is provided to support this argument across countries and sectors. This study maintains consumers value investments made by e-tailers and reciprocate this effort with higher levels of e-loyalty towards that e-tailer. While these results confirm findings in previous offline (DeWulf et al., 2001) and online studies (Wang & Head, 2007; Yoon et

al., 2008; Rafiq et al., 2013), this study uniquely confirms these results across China, India, UK and US. A key recommendation would be for e-tailers to understand the importance of relationship investment across countries and sectors and to actively engage in investing in relationships with consumers online. This could be through greater personalised interactions, enhanced customized experiences and online community building measures. The analysis of results examined previously provides a better understanding of the magnitude of the effects of e-tailer investments on the individual dimensions of relationship quality and can provide e-tailers with greater insight into the individual impacts of retailer investments on ongoing trust, relationship satisfaction and affective commitment.

Findings from the analysis suggest e-tailer investments would have the strongest impact on ongoing trust in China, India and the US, followed by affective commitment and lastly relationship satisfaction. This implies investments made in the consumer relationship would primarily affect ongoing trust formation. A number of online loyalty studies focus on a variety of determinants of trust. These include website elements such as information design, visual design and navigation (Ganguly et al., 2010; Cyr, 2013), privacy and security issues including seals and assurances (Lee & Turban, 2001; Mukherjee & Nath, 2007; Kim & Benbasat, 2010). While these studies are acknowledged as important they are not directly related to this study. Determinants of ongoing trust in the relationship from relationship investments are more related to competency and expertise factors and seek to minimise risk on repeated interactions. These could include more traditional CRM initiatives and in line with Yoon (2008) could include; customised communications, e-newsletters, efficient processes relating to prompt return policies, quick response to queries and fulfilment. Evidence of clear returns and exchange policies would be



extremely beneficial in China and India. Given the rise of distrust evidenced by US consumers, e-tailers in this market would be advised to demonstrate clearer enactment of privacy and data protection policies (GIGI-Ipsos, 2018).

In contrast, e-tailer investments would have the strongest impact on affective commitment in the UK, followed by ongoing trust and lastly relationship satisfaction. Based on the analysis from this study it is suggested e-tailers adopt more affective-commitment building strategies in the UK, developing emotional connections. To develop greater emotional bonds with consumers e-tailers could develop platforms for consumers to share experiences and aim to develop a sense of community and belonging (Evanschitzky et al., 2006). A number of fashion e-tailers currently engage in a range of social platforms facilitating greater interaction and communication with customers. For example, Instagram and snapchat is widely adopted in the UK and US, WeChat, RenRen and Weibo in China and Facebook, WhatsApp and Instagram in India. E-tailers can engage with consumers and facilitate collaborative relationships through user driven content strategies. The role of influencer marketing is valuable in creating stronger emotional bonds.<sup>3</sup> Based on this study, it is recommended e-tailers should focus on macro and micro influencers rather than traditional mega influencers associated with celebrities. This allows more authentic and engaging content to promote relevance and resonance (Gottbrecht, 2016). Social community development would be particularly effective with UK consumers to develop online affective commitment.

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<sup>3</sup> Mega influencer (1million subscribers +), Macro influencer (10,000 – 1million subscribers), Micro influencer (50,000 or less subscribers): Gottbrecht (2016)

E-tailers should engage with consumers in emerging technologies with a greater integration of online and offline technologies. This could be achieved by co-creation and experiences that develop greater emotional connections with consumers. Possible opportunities include augmented reality (AR), gaming (advergaming), VR and ephemeral content. Furthermore, smartphone and mobile integration in the shopping experience is recommended in China and India given the high levels of smartphone penetration (eMarketer, 2018). Practical examples could include; mobile apps, interactive displays, location based beacons, targeted advertising, personalised offers and mobile payments. Additionally e-tailers could ensure the development and maintenance of a strong brand identity given branding has been shown to be a significant driver of emotional attachments and patronage intentions (Fullerton, 2005).

Along the recommendations made by Riefler et al., (2012), this study suggests using consumer cosmopolitanism as a potential segmentation base in international e-tailing and highlights China, India and the UK as suitable countries. Based on results from this study it is suggested e-tailers should include more hedonic appeals for cosmopolitan shoppers in sectors with higher levels of emotional attachment. For example, the clothing sector is considered more hedonic resulting in a greater tendency for consumers to have emotional connections to the product category (Kushwaha & Shankar, 2013). Given this is a relatively unexplored area, it could provide e-tailers with competitive advantages in online loyalty formation by focusing on new customer segments.

The data analysis shows national culture through collectivism is found to have a moderating effect on the online relationship investment → trust → loyalty link, suggesting ongoing trust is more important in collectivist countries showing a significant effect in India and China. Although this is not confirmed in all collectivist countries a practical

implication would be for e-tailers to consider more ongoing trust building measures in more collectivist countries including China and India. While these measures have been discussed in the previous section focusing on traditional CRM techniques and efficient processes, additional measures could include more physical cues to re-iterate consistency. These could include clear statements and policies on delivery, service and returns.

The role of product category involvement is more complex and results from this study demonstrate variations are found in the clothing and electrical products sector. The findings suggest product category involvement influences affective commitment across China, India, UK and the US in the clothing sector. Based on these findings, e-tailers would be advised to focus on affective commitment building measures in sectors where consumers are more influenced by hedonic appeals. For example the clothing sector as discussed earlier demonstrates more hedonic aspects (Kushwaha & Shankar, 2013). This effect is fairly consistent across all four countries and similar measures could be introduced across countries. As mentioned previously measures could centre on developing greater emotional attachments with consumers through experience sharing, community building and branding. Messages aimed at these consumers would be focused on emotional appeals. In contrast, higher levels of product category involvement has a negative impact on the relationship between e-tailer investments and ongoing trust in the electrical products sector. Based on results from this study e-tailers would be advised to focus trust building measures in this sector which would contribute to exchange efficiencies and added value in the exchange process. For example, these measures could include directing customers to impartial and independent review websites, highlighting independent awards and seals of recognition. Given this effect is only evident in the UK and US these suggestions may be more effective in individualistic countries.

## **9.5 Limitations**

Although this study highlights some important findings regarding online loyalty formation, there are certain limitations and scope to explore other areas. This section explores limitations of the study focusing on; cross-sectional design, research scope and context, omni-channel consumers, sample composition, cultural dimensions, antecedents of online loyalty and consumer cosmopolitanism.

First this study adopts a single instrument approach through the use of an online survey which could give rise to common method bias (Podsakoff, 2013). To address this issue a multi-method approach is suggested. While the study examines repurchase intention through self-reported measures, actual purchasing data would provide for a more robust analysis. Additionally, this research is based on a cross-sectional study and the use of longitudinal data in future studies would provide a tool to examine online loyalty formation over a period of time.

Second, given this study is placed in a confined context extending the scope of future studies would allow a better understanding across a wider range of countries and sectors. The focus of this current study has been on China, India, UK and US and could be expanded to include other countries at different stages in their retail e-commerce development. This would be particularly useful in understanding how e-tailer investments affect online loyalty across developed and less developed e-commerce markets. To provide a broader view of online loyalty formation it is suggested to examine online relationship investment and relationship quality across a range of sectors and not solely focus on product category based sectors including clothing and electrical products.

These could additionally involve more service oriented sectors, for example; travel, media and streaming services.

Third, the focus on this study remains on loyalty formation in an online context and does not address issues with loyalty in an offline setting. It would be interesting to investigate e-tailer investments in both an online and offline context and to examine how an integrated approach affects online loyalty. A number of studies have called for more research in this area to better understand the omni-channel consumer and the relationships between online and offline loyalty (Shankar et al., 2003; Verhoef et al., 2015). This could be further extended to include how e-tailer investments affect various touchpoints and offers a more realistic and holistic understanding of consumers in online loyalty formation.

Fourth, this current study does not focus on any particular socio-economic group in each of the countries investigated which could offer potential future research avenues. While the online literature primarily focuses on millennials and more recently, Generation Z as the main consumer segment driving online retail growth, further investigations into older consumers is warranted (A.T. Kearney, 2013; eMarketer, 2017). This would prove particularly useful in countries where the trend towards an ageing population is evident as in the UK and US (A.T. Kearney, 2013). Given this segment is generally seen to have higher disposable incomes alongside more leisure time, is often viewed as an attractive market segment. However, the research on this segment in the online loyalty literature is limited and so provides possible future opportunities. Furthermore, given the large and diverse populations in China and India with an increasing number of online shoppers, future studies could examine inter-regional differences in behaviour and attitudes.

Fifth, this research examines national culture through collectivism, one of six dimensions presented in Hofstede's dimensions of culture (Hofstede, 2001; Minkov & Hofstede, 2012; Hofstede Insights, 2019). While this dimension is one of the more popular ones included in the online loyalty research stream it provides limited insight and an opportunity is evident to examine a wider range of dimensions. These could include; uncertainty avoidance, masculinity, power distance, long term orientation and indulgence (Hofstede Insights, 2019). Additionally, other frameworks such as Fukuyama's (1995) high and low context classifications or the GLOBE values framework (House et al, 2004) could be included to broaden the perspective. While the focus of this current study is on national culture, individual levels of culture could be examined based on more personality traits and the role of consumer cosmopolitanism as a segmentation base further developed.

Sixth, in terms of online loyalty formation, the reliance on a single antecedent (online perceived relationship investment), provides only one perspective to a multi-dimensional phenomenon (Athanasopoulou, 2009). Thus, future studies could benefit from a research approach which includes additional antecedents. In particular, customer focused antecedents (relationship benefits or dependence on seller ) as well as dyadic antecedents (communication, similarity, relationship duration) could be highly beneficial in trying to understand how online loyalty emerges and is retained (Palmatier et al., 2006; Verma et al., 2016). Finally, while this research inquiry is one of the first ones to examine the role of consumer cosmopolitanism in online loyalty formation, there is a venue for future work in which the impact of consumer cosmopolitanism on other constructs is assessed. These could include constructs of switching costs, bonds and conflict which are additionally found in the relationship quality research stream.

## **9.6 Future Research Areas**

This empirical study provides a range of insights into online loyalty formation in an international context. However, it additionally raises a number of questions that could provide potential avenues for future research. The following section explores key themes where this study could be extended including; attention to psychological drivers, the role of reciprocity, understanding cosmopolitan consumers, online affective commitment and negative effects of retailer investments.

First, this study highlights the lack of attention given to psychological drivers of online loyalty in the international online loyalty literature, highlighting three studies out of potentially seventeen focusing on psychological drivers. While significant attention is paid to functional drivers, benefits in terms of developing competitive advantages could be diminishing as online shopping experiences become progressively homogenised. Previous mechanisms of online loyalty formation have tended to focus on online website and service experiences (Valvi & Fragkos, 2012; Toufaily et al., 2013). Therefore if consumers have good experiences online whether through service delivery, design, navigation, enjoyment, perceived ease of use etc., they will tend to be more loyal (Yoon 2009; Ganguly et al., 2010; Cyr, 2013). However, as websites become more sophisticated, better designed and more functional, consumer expectations adjust to these standardised levels of normality. Newer insights are needed into online loyalty formation through a different range of drivers and in particular more psychological ones. While this study focuses on online perceived relationship investment, other studies could investigate a wider range of psychological drivers. These could include; brand experience, personal values, reputation, perceived consumer power and parity.

Second, the role of reciprocity in online loyalty formation warrants further attention. While this study is the first of its kind to examine reciprocity within an international online loyalty context, the role of reciprocity is relatively underexplored in the loyalty research stream (De Wulf et al., 2001; Rafiq et al., 2013). Although the role of reciprocity has gained some attention, appearing more recently in a limited number of loyalty studies there is still plenty of scope to understand this mechanism further (Kozlenkova et al., 2017). A number of studies examine loyalty through relationship marketing and relationship quality (Bagozzi, 1995; Swoboda et al., 2016; Rafiq et al., 2013). These studies contend that if consumers and retailers have longer term and stronger relationships, consumers will tend to be more loyal (Crosby et al., 1990; Anderson & Srinivasan, 2003; Vesel & Zabkar, 2010). However, the mechanisms of developing these longer and stronger relationships through reciprocal exchanges needs further investigation. While this study initially examines positive reciprocal exchanges in a multi-country and multi-sector context, future studies could extend this further to a wider range of countries and sectors. Furthermore, considerations should be given to examining different types of reciprocal mechanisms in business-to consumer-settings. For example, Hoppner et al. (2015) examines reciprocity with suppliers through reciprocal equivalence and reciprocal immediacy in the US and Japan. While this offers some further clarification on types of reciprocity, it has only been tested in a B2B setting and future studies could examine these classifications alongside others in a business-to- consumer setting.

Third, understanding the behaviour and attitudes of cosmopolitan consumers requires further addressing and could be a potential avenue for future research. This is particularly useful given the increasing interest in cosmopolitan consumers and the viability of this



group as an alternative international segmentation method based on individual characteristics (Steenkamp, 2001; Cannon & Yaprak, 2002; Riefler et al., 2012; Han & Won 2018). Although the examination of consumer cosmopolitanism is more established in the wider international literature, its use in empirical studies remains limited (Riefler et al., 2012). While this study examines the moderating effect of consumer cosmopolitanism in an online context across countries, attention should be given to examining the effects of cosmopolitanism on consumer behaviour and attitudes in offline retailing settings across countries as well. This study investigates consumer cosmopolitanism in relation to e-tailer investments, trust, satisfaction and affective commitment and within the context of relationship quality providing a specific view of consumer cosmopolitanism. The role of consumer cosmopolitanism could be examined in relation to a wider range of relationship marketing factors including; switching costs, perceived risk, shopping enjoyment, perceived value and flow. Furthermore, results from this study suggest further investigation is warranted into the C-COSMO scale. Although initially constructed as a three-dimensional, second-order construct, questions remain on the reliability and necessity of two of the dimensions - diversity appreciation and consumption transcending borders and whether the C-COSMO scale may be better treated as unidimensional. While this study found some items from the comprehensive scale did not work in China and India but did in the UK and US, further studies could examine the robustness of the scale across a wider range of countries.

Fourth, the role of online affective commitment should be examined in various contexts and particularly across countries. This study provides strong empirical support for the role of affective commitment in online loyalty formation across four countries and two sectors. While this study re-enforces the importance of online affective commitment and





emotional attachment, studies examining affective commitment are still limited in both the online and offline loyalty literature (Toufaily et al., 2013; Verma et al., 2016). Future studies could examine the role of emotional attachments and connections in a wider variety of settings. This is particularly important, as online loyalty is no longer solely restricted to functional and technical elements of an online experience. As this study shows consumers are seeking greater emotional attachments to e-tailers and may be more relevant in some countries compared to others. For example, this study ranks affective commitment as having the strongest impact in the UK compared to trust and satisfaction. Future studies could examine the importance of affective commitment in relation to trust and satisfaction and whether affective commitment is more highly valued in individualistic or well-established retail e-commerce markets.

Lastly, opportunities exist to examine the negative effects of e-tailer investments in the relationship. The limited number of studies that examine retailer investments in both the online and offline business to consumer environment are related to positive effects of retailer investments and tend to be based around certain product categories of food, clothing and CD/DVDs, where the functional perceived risk is relatively low (De Wulf et al., 2001; Wang & Head, 2007; Rafiq et al., 2013; Park & Kim, 2014). This study finds evidence to support negative moderation of product category involvement on the relationship between retailer investments and trust in the electrical product category. This may be related to more complex or higher value products that may have higher levels of functional perceived risk and hence consumers may not necessarily value e-tailer investments as much seeking more independent and impartial advice. This is a particularly interesting finding and a relatively underexplored area and hence, the negative effects of retailer investments could be examined more extensively. Further

studies could examine a wider range of countries to see if a negative effect is more prevalent in individualistic countries or if certain product categories are affected where consumers rely on more impartial advice.

## **APPENDICES**

## Appendix A: Country Information

	China 	India 	UK 	US 
<b>Population</b> <sup>1</sup>	1,420 million	1,368 million	66 million	329 million
<b>Median Age</b> <sup>1</sup>	39	28	41	38
<b>Urban Population</b> <sup>1</sup>	60%	34%	81%	84%
<b>GDP (PPP)</b> <sup>2</sup>	\$16, 624	\$7,174	\$43, 620	\$59, 495
<b>Digital Buyer Growth Rate (2019)</b> <sup>3</sup>	5.8%	22.1%	1.3%	2.2%
<b>Digital Penetration Rate, % population (2019)</b> <sup>3</sup>	48.0%	27.8%	79.4%	70.3%
<b>Retail E-commerce Sales</b> <sup>3</sup>	\$1,973 billion	\$34.10 billion	\$138 billion	\$598 billion
<b>Digital Buyers Worldwide (2019)</b> <sup>3</sup>	600 million	273 million	44 million	193 million
<b>E-Commerce Retailers (by market share)</b>	Alibaba (58.2%) <sup>4</sup> JD.com (16.3%) Pinduoduo (5.2%) Suning (1.9%)	Flipkart (44%) <sup>5</sup> Snapdeal (32%) Amazon.In (15%)	Amazon (16%) <sup>6</sup> Tesco (9%) Ebay (8%) ASOS (7.5%) Argos (6.6%)	Amazon (49.1%) <sup>7</sup> eBay (6.6%) Apple (3.9%) Walmart (3.7%) Home Depot (1.3%)

1. Worldometers (2019) United Nations, Department of Economics and Social Affairs, Population Division: The 2017 revision]

2. World Bank(2019) [GDP PPP - Gross Domestic Product based on Purchasing Power Parity]

3. E-marketer (2018)

4. Statista (2019)

5. IMRG (2018)

6. Ecommerce News Europe (2019)

## **Appendix B: Hofstede's Dimensions of Culture Descriptions**

### **Individualism**

Individualism on the one side versus its opposite, Collectivism, as a societal, not an individual characteristic, is the degree to which people in a society are integrated into groups. On the individualist side exists cultures in which the ties between individuals are loose: everyone is expected to look after him/herself and his/her immediate family. On the collectivist side exists cultures in which people from birth onwards are integrated into strong, cohesive in-groups, often extended families that continue protecting them in exchange for unquestioning loyalty, and oppose other in-groups.

### **Power Distance**

Power Distance has been defined as the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally. This represents inequality (more versus less), but defined from below, not from above. It suggests that a society's level of inequality is endorsed by the followers as much as by the leaders. Power and inequality, of course, are extremely fundamental facts of any society. All societies are unequal, but some are more unequal than others.

### **Uncertainty Avoidance**

Uncertainty Avoidance deals with a society's tolerance for ambiguity. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, and different from usual. Uncertainty avoiding cultures try to minimize the possibility of such situations by strict behavioral codes, laws and rules, disapproval of deviant opinions, and a belief in absolute Truth; 'there can only be one Truth and we have it'.

### **Masculinity – Femininity**

Masculinity versus its opposite, Femininity, as a societal characteristic, refers to the distribution of values between the genders which is another fundamental issue for any society, to which a range of solutions can be found. The assertive pole has been called 'masculine' and the modest, caring pole 'feminine'. The women in feminine countries have the same modest, caring values as the men; in the masculine countries they are somewhat assertive and competitive, but not as much as the men, so that these countries show a gap between men's values and women's values. In masculine cultures there is often a taboo around this dimension (Hofstede et al., 1998)

### **Long versus Short Term Orientation**

Long- versus Short-Term Orientation is the extent to which a society exhibits a pragmatic future-oriented perspective rather than a conventional historic or short-term point of view. Values included in long-term orientation are perseverance, ordering relationships by status and observing this order, thrift, and having a sense of shame. The opposite is short-term orientation, which includes personal steadiness and stability, respect for tradition, and the pursuit of happiness rather than pursuit of peace of mind. Long-term orientation (LTO) implies investment in the future.

### **Indulgence versus Restraint**

The sixth and new dimension, uses Minkov's label Indulgence versus Restraint. It focuses on aspects not covered by the other five dimensions, but known from literature on "happiness research". Indulgence stands for a society that allows relatively free gratification of basic and natural human desires related to enjoying life and having fun. Restraint stands for a society that controls gratification of needs and regulates it by means of strict social norms.

**Source:** Hofstede, G. (2011)

## **Appendix C : Print version of online survey – English**

### **Online Loyalty Across Countries Survey PARTICIPANT CONSENT FORM**

**Title of Research Project: A comparative multi-country, multi-sector study of online loyalty in internet retailing.**

**Brief Description of Research Project and What Participation Involves:** This is a study examining online loyalty when consumers shop online. It investigates consumer attitudes towards loyalty across four countries; India, China, US and UK. It focusses on what makes consumers loyal to online retailers and the factors that encourage them to go back to favoured retailers. You have been invited to take part in this online survey because you have experience of shopping online and this study wants to get a better understanding of your attitudes towards shopping online. This study is planning on recruiting 250 participants in each of the countries mentioned. The study is being carried out by Sree Beg, a PhD research student at the University of Roehampton and data collected will only be used for academic purposes. Please complete the following questionnaire online, it should take around 20 minutes to complete.

#### **Investigator Contact Details:**

**Sree Beg:** Roehampton Business School Queens Building 80 Roehampton Lane SW15 5SL begs@roehampton.ac.uk +44 (0)20 8392 3232

Please note: if you have a concern about any aspect of your participation or any other queries please raise this with the investigator (Sree Beg) or you can also contact the Director of Studies (Professor Mohammed Rafiq). However, if you would like to contact an independent party please contact the Head of Department (Professor Sharon Mavin).

#### **Director of Studies**

*Professor Mohammed Rafiq*  
Roehampton Business School  
Queens Building

80 Roehampton Lane

SW15 5SL

Mohammed.rafiq@roehampton.ac.uk  
+44 (0)208 392 3232

#### **Head of Department**

*Professor Sharon Mavin*  
Roehampton Business School  
Queens Building

80 Roehampton Lane

SW15 5SL

Sharon.mavin@roehampton.ac.uk  
+44 (0)208 392 3232

#### **Information for Participants**

**Right to Withdraw:** As a participant to the study, you have the right to withdraw from the study at any time. No reason has to be given and this is entirely your choice. You

can withdraw from the study by clicking on the 'Exit Survey' link visible on the screen. Please be aware your data may still be used in a collated format.

**Confidentiality:** Responses will be confidential and only used for University research purposes. No personal information will be collected such as your name, address, e-mail or IP address. All data is stored in a password protected electronic format in a secure environment. To help protect your confidentiality, the surveys will not contain information that will personally identify you.

**Qualtrics and Lucid Federated Sample:** This study is being carried out with the assistance of Qualtrics and Lucid Federated Sample. You have been invited to take part in the survey as you have been identified as an opt- in panel member. If you have any queries regarding your panel membership please contact Lucid Federated Sample or Qualtrics directly.

I agree to take part in this research, and am aware that I am free to withdraw at any point without giving a reason, although if I do so I understand that my data might still be used in a collated form. I understand that the information I provide will be treated in confidence by the investigator and that my identity will be protected in the publication of any findings. Data will be collected and processed in accordance with the Data Protection Act 1998 and with the University's Data Protection Policy. By clicking on the 'agree' button

I am confirming;

- I am 18 or over
  - Have read the above information
  - Voluntary participation in the study
- ☐ I agree
- ☐ I would like to withdraw

Country What is your primary country of residence ?

- ☐ India
- ☐ United States
- ☐ United Kingdom
- ☐ Other



**Q1.** Have you shopped online before ?

- ☐ Yes
- ☐ No

**Q2.** Have you purchased clothing AND an electrical product (see list below for examples) more than once in the last year ?

**Consumer Electrical Products:**

Audio Visual and photographic equipment (TVs, Stereos, photographic equipment,digital cameras, projectors etc.).

Computing and Telecoms (desktops, laptops, tablets, smartwatches, mobile and home phones etc. )

Personal Care Appliances (electrical razors, fitness trackers, hairdryers, hair straighteners etc.).

- ☐ Yes
- ☐ No

**Q3.** How long have you been shopping online for ?

- ☐ less than 6 months
- ☐ 6 months - 1 year
- ☐ 1- 3 years
- ☐ 3 years +

**Q4.** Please select the category of electrical products you have bought previously ? (You can select more than one)

- ☐ Audio Visual and Photographic Equipment (TVs, stereos, photographic equipment, digital cameras, projectors etc.).
- ☐ Computing and Telecoms (desktops, laptops, tablets, mobile and home phones, smartwatches, etc. )
- ☐ Personal Care Appliances (electrical razors, fitness tracker, hairdryers, hair straighteners etc.).

**Q5.** How often have you made a purchase online in the last month ?

- ☐ None
- ☐ 1-2 times
- ☐ 3-4 times
- ☐ 5 or more times

**Q6. (DEVICE)** What is your preferred method of shopping online ?

- ☐ Desktop
- ☐ Laptop
- ☐ Mobile Phone
- ☐ Tablet
- ☐ Other

**Q6a.** If other, please write here \_\_\_\_\_

**Q7.** Do you use social media ?

- ☐ Yes, all the time (e.g at least every day)
- ☐ Yes, a lot (e.g a few times a week)
- ☐ Yes, Sometimes (e.g a few times a month)
- ☐ Not very much (e.g occasionally)
- ☐ No, Never

**Q7a.** What social media do you use the most ? If you select 'Other' please write the social media site in the space provided.

- ☐ Facebook
- ☐ Facebook Messenger
- ☐ Twitter
- ☐ YouTube
- ☐ Instagram
- ☐ Snapchat
- ☐ Viber
- ☐ WhatsApp
- ☐ LinkedIn
- ☐ Google+
- ☐ WeChat
- ☐ Pinterest
- ☐ Reddit
- ☐ Tumblr
- ☐ VK
- ☐ Other \_\_\_\_\_

**Q8.** (*LOYI\_Csite*) Name your favourite online clothing website or a website you buy clothes from frequently \_\_\_\_\_

**Q9.** (LOY1\_C) Thinking about this clothing website please answer the following questions. How likely is it that you would:

		Not at all Likely	2	3	4	5	6	Extremely Likely
<b>Q9a.</b>	Consider it my first choice to buy clothes (LOY1_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q9b</b>	Encourage friends and relatives to buy clothes from it ? (LOY1_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q9c</b>	Recommend it to someone who seeks your advice ? (LOY1_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q9d</b>	Say positive things about it to other people ? (LOY1_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q9e</b>	Purchase more clothes from it in the future ? (LOY1_C5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q10.** (EPRI\_C) Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q10a.</b>	This clothing website makes efforts to increase regular customers' loyalty. (EPRI_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q10b.</b>	This clothing website makes various efforts to improve its tie with regular customers. (EPRI_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q10c.</b>	This clothing website really cares about keeping regular customers. (EPRI_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q10d.** (EPRI\_C4) What 'efforts' if any, do you value from this clothing website ?

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**Q11.** (SOCIALUSE\_CLOTHES) Thinking about this clothing website, how do you usually use social media in connection with this website ?

- ☐ Viewing brand related video
- ☐ Playing branded online video games
- ☐ Commenting on brand related weblogs, video, audio, pictures etc.
- ☐ Listening to brand related audio
- ☐ Downloading branded widgets
- ☐ Publishing a brand related weblog
- ☐ Watching brand related pictures
- ☐ Sending branded virtual gifts/cards
- ☐ Following threads on online brand community forums
- ☐ Rating products and/or brands
- ☐ Uploading brand related video, audio, pictures or images
- ☐ Reading comments on brand profiles on social network sites
- ☐ Joining a brand profile on a social network site
- ☐ Writing brand related articles
- ☐ Reading product reviews
- ☐ Engaging in branded conversations (e.g. forums)
- ☐ Writing product review
- ☐ None of the above
- ☐ Other \_\_\_\_\_

**Q12.** (EAC\_C) Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q12a.</b>	I feel emotionally attached to my clothing website. (EAC_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q12b.</b>	I feel a strong sense of identification with my clothing website. (EAC_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q12c.</b>	My clothing website has a great deal of personal meaning for me. (EAC_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q13.** ETRUST\_C Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q13a.</b>	This website is reliable for online clothing shopping. (ETRUST_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<b>Q13b.</b>	The performance of this website meets my expectations. (ETRUST_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q13c.</b>	This website can be counted on to complete the transaction successfully. (ETRUST_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q14d.</b>	I can trust the performance of this website to be good. (ETRUST_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q14.** (PV\_C1) Products purchased at this website are:

- ☐ Poor Value for Money
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ Very Good Value for Money



**Q15.** Value\_Clothes Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q15a.</b>	Products purchased at this website are considered to be a good buy. (PV_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q15b.</b>	You get what you pay for at this website. (PV_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q15c.</b>	Products purchased at this website are worth the money paid. (PV_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q16.** (ERS\_C1) How satisfied are you with the relationship you have had with your clothing store website ?

- ☐ Very Dissatisfied
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ Very Satisfied

**Q16a.** (ERS\_C2) How pleased are you with the relationship you have had with your clothing store website ?

- ☐ Very Displeased
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ Very Pleased

**Q16b.** (ERS\_C3) How favourably do you rate your relationship with your clothing store website ?

- ☐ Unfavourable
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ Favourable

**Q17.** (EWOM\_Clothing) Please read the following statements about the clothing website and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q17a.</b>	I say positive things about this website to other people (EWOM_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q17b.</b>	I recommend this website to anyone who seeks my advice (EWOM_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q17c.</b>	I do not encourage friends to do business with this website. (EWOM_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q17d.</b>	I hesitate to refer my acquaintances to this website. (EWOM_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q18.** (INVOLVE\_C) The next 3 questions are based on your personal attitudes towards clothes. Please choose the statement that most closely applies to you.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q18a.</b>	Generally, I am someone who finds it important what clothes he or she buys. (INVOLVE_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q18b.</b>	Generally, I am someone who is interested in the kind of clothing he or she buys. (INVOLVE_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q18c.</b>	Generally, I am someone for whom it means a lot what clothes he or she buys. (INVOLVE_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q19.** (ETRUST\_GEF\_CLOTH) Thinking about your clothing website, please answer the following questions:

			Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q19a.</b>	Even if not monitored, I'd trust this clothing website to do the right job. (ETRUST_GEF_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q19b.</b>	I trust this clothing website (ETRUST_GEF_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q19c.</b>	I believe that this clothing website is trustworthy (ETRUST_GEF_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q19d.</b>	I am quite certain of what to expect from this clothing website (ETRUST_GEF_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q20.** The next few questions are based on your personal views and will help us identify what kind of shopper you are.

(COSMO\_OM) Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q20a.</b>	When travelling I make a conscious effort to get in touch with the local culture and tradition (COSMO_OM1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q20b.</b>	I like having the opportunity to meet other people from many different countries. (COSMO_OM2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q20c.</b>	I like to have contact with people from different cultures. (COSMO_OM3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q20d.</b>	I have got a real interest in other countries. (COSMO_OM4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q21.** (COSMO\_DA) Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q21a.</b>	Having access to products coming from many different countries is valuable to me. (COSMO_AD1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q21b.</b>	The availability of foreign products in the domestic market provides valuable diversity. (COSMO_AD2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q21c.</b>	I enjoy being offered a wide range of products coming from various countries. (COSMO_AD3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q21d.</b>	Always buying the same local products becomes boring over time. (COSMO_AD4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q22.** (COSMO\_Culture) Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q22a.</b>	I like watching movies from different cultures. (COSMO_CULTURE1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q22b.</b>	I like to listen to music of other cultures. (COSMO_CULTURE2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q22c.</b>	I like trying original dishes from other countries (COSMO_CULTURE3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q22d.</b>	I like trying out things that are consumed elsewhere in the world. (COSMO_CULTURE4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q23.** (LOY\_Esite) The next set of questions are similar to the previous ones but are based on your shopping experience of electrical products. Name your favourite website or website you use frequently for buying electrical products.

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**Q24.** (SOCIALUSE\_ELECTRIC) Thinking about this electrical products website, how do you usually use social media in connection with this website ?

- ☐ Viewing brand related video (1)
- ☐ Playing branded online video games (2)
- ☐ Commenting on brand related weblogs, video, audio, pictures etc. (3)
- ☐ Listening to brand related audio (4)
- ☐ Downloading branded widgets (5)
- ☐ Publishing a brand related weblog (6)
- ☐ Watching brand related pictures (7)
- ☐ Sending branded virtual gifts/cards (8)
- ☐ Following threads on online brand community forums (10)
- ☐ Rating products and/or brands (11)
- ☐ Uploading brand related video, audio, pictures or images (12)
- ☐ Reading comments on brand profiles on social network sites (13)
- ☐ Joining a brand profile on a social network site (14)
- ☐ Writing brand related articles (15)
- ☐ Reading product reviews (16)
- ☐ Engaging in branded conversations (e.g. forums) (17)
- ☐ Writing product review (18)
- ☐ None of the above (19)
- ☐ Other (20) \_\_\_\_\_

**Q25.** (LOY1\_ELEC) Thinking about this electrical website please answer the following questions. How likely is it that you would:

		Not at all likely	2	3	4	5	6	Extremely likely
<b>Q25a.</b>	Consider it my first choice to buy electrical products (LOY1_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q25b.</b>	Encourage friends and relatives to buy electrical products from it ? (LOY1_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q25c.</b>	Recommend it to someone who seeks your advice ? (LOY1_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q25d.</b>	Say positive things about it to other people ? (LOY1_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q25e.</b>	Purchase more electrical products from it in the future ? (LOY1_E5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q26.** (EPRI\_E) Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q26a.</b>	This electrical website makes efforts to increase regular customers' loyalty. (EPRI_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q26b.</b>	This electrical website makes various efforts to improve its tie with regular customers. (EPRI_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q26c.</b>	This electrical website really cares about keeping regular customers. (EPRI_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q26d.**(EPRI\_E4) What 'efforts' if any, do you value from this electrical products website ?

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**Q27.** (EAC\_ELEC) Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q27a.</b>	I feel emotionally attached to my electrical website. (EAC_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q27b.</b>	I feel a strong sense of identification with my electrical website. (EAC_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q27c.</b>	My electrical website has a great deal of personal meaning for me. (EAC_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q28.** (ETRUST\_ELEC) Please read the following statements and choose one of the options.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q28a.</b>	This website is reliable for online electrical shopping. (ETRUST_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q28b.</b>	The performance of this website meets my expectations. (ETRUST_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q28c.</b>	This website can be counted on to complete the transaction successfully. (ETRUST_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q28d.</b>	I can trust the performance of this website to be good. (ETRUST_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q29.** (PV\_E1) Products purchased at this Web site are:

- ☐ Very Poor Value for Money
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ Very Good Value for Money

**Q30.** (Value\_electrical) Please answer the following questions.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q30a.</b>	Products purchased at this website are considered to be a good buy. (PV_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q30b.</b>	You get what you pay for at this website. (PV_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q30c.</b>	Products purchased at this website are worth the money paid. (PV_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q31.**(ERS\_E1) How satisfied are you with the relationship you have had with your electrical products store website ?

- ☐ Very Dissatisfied
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ Very Satisfied

**Q31a.**(ERS\_E2 )How pleased are you with the relationship you have had with your electrical product website ?

- ☐ Very Displeased
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ Very Pleased

**Q31b.** (ERS\_E3) How favourably do you rate your relationship with your electrical products website ?

- ☐ Unfavourable
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ Favourable

**Q32.** (EWOM\_Electric) Please answer the following questions about the electrical products website you use.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q32a.</b>	I say positive things about this website to other people (EWOM_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q32b.</b>	I recommend this website to anyone who seeks my advice (EWOM_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q32c.</b>	I do not encourage friends to do business with this website. (EWOM_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q32d.</b>	I hesitate to refer my acquaintances to this website. (EWOM_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**Q33.** (INVOLVE\_ELECTRIC) The next 3 questions are based on your personal attitudes towards electrical products. Please choose the statement that most closely applies to you.

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q33a.</b>	Generally, I am someone who finds it important what electrical products he or she buys. (INVOLVE_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q33b.</b>	Generally, I am someone who is interested in the kind of electrical products he or she buys. (INVOLVE_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q33c.</b>	Generally, I am someone for whom it means a lot what electrical products he or she buys. (INVOLVE_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q34.** (ETRUST\_GEF\_ELEC) Thinking about your electrical website, please answer the following questions:

		Strongly Disagree	2	3	4	5	6	Strongly Agree
<b>Q34a.</b>	Even if not monitored, I'd trust this electrical website to do the right job. (ETRUST_GEF_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q34b.</b>	I trust this electrical website (ETRUST_GEF_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q34c.</b>	I believe that this electrical website is trustworthy (ETRUST_GEF_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Q35d.</b>	I am quite certain of what to expect from this electrical website (ETRUST_GEF_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(SDB) That is the end of the section. Please select True or False for the next set of questions.

**Q35.**(SDB1) I sometimes feel resentful when I don't get my way.

- ☐ True
- ☐ False

**Q35a.**(SDB2) On a few occasions, I have given up doing something because I thought too little of my ability.

- ☐ True
- ☐ False

**Q35b.**(SDB3) There have been times when I felt like rebelling against people in authority even though I knew it wouldn't get me anywhere.

- ☐ True
- ☐ False

**Q35c.**(SDB4) No matter who I'm talking to, I'm always a good listener.

- ☐ True
- ☐ False

**Q35d.**(SDB5) I can remember "playing sick" to get out of something.

- ☐ True
- ☐ False

**Q35e.**(SDB6) There have been occasions when I took advantage of someone.

- ☐ True
- ☐ False

**Q35f.**(SDB7) I'm always willing to admit when I make a mistake.

- ☐ True
- ☐ False

**Q35g.**(SDB8) I sometimes try to get even, rather than forgive and forget.

- ☐ True
- ☐ False

**Q35h.**(SDB9) I am always courteous, even to people who are disagreeable.

- ☐ True
- ☐ False

**Q35i.**(SDB10) I have never been annoyed when people expressed ideas very different from my own.

- ☐ True
- ☐ False

**Q35j.**(SDB11) There have been times when I was quite jealous of the good fortune of others.

- ☐ True
- ☐ False

**Q35k.**(SDB12) I am sometimes irritated by people who ask favours of me.

- ☐ True
- ☐ False

**Q35l.**(SDB13) I have never deliberately said something that hurt someones's feeling.

- ☐ True
- ☐ False

That is the end of the section. The next few questions are based on your circumstances.

**Q36.** (Gender) What is your gender ?

- ☐ Male
- ☐ Female

**Q37.** (Age) What age group are you in ?

- ☐ 18 - 24
- ☐ 25 - 34
- ☐ 35 - 44
- ☐ 45 - 54
- ☐ 55 - 64
- ☐ 65 and over

If United Kingdom Is Selected

**Q38.**(Income) What is your average annual household income ?

- ☐ Less than £15,000
- ☐ £15,001 - £25,000
- ☐ £25,001 - £35,000
- ☐ £35,001 - £60,000
- ☐ £60,001 or more

If India Is Selected

**Q38a.** What is your average annual household income ?

- ☐ Less than 33,000 Rs
- ☐ 33,001 - 50,000 Rs
- ☐ 50,001 - 80,000 Rs
- ☐ 80,001 - 150,000 Rs
- ☐ 150,001 Rs or more

If United States Is Selected

**Q38b.** What is your average annual household income ?

- ☐ Less than \$20,000 (3)
- ☐ \$20,001 - \$40,000 (4)
- ☐ \$40,001 - \$70,000 (5)
- ☐ \$70,001 - \$100,00 (6)
- ☐ \$100,001 or more (7)

If United States Is Selected

**Q39a.** (Education) What is the highest level of school you have completed or the highest degree you have received?

- ☐ Did not complete High School
- ☐ High school graduate (high school diploma or equivalent including GED)
- ☐ Some college but no degree
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctoral degree

If India Is Selected

**Q39b.** What is the highest level of school you have completed or the highest degree you have received?

- ☐ Did not complete Secondary School (Matriculation)
- ☐ Secondary (Matriculation)
- ☐ High Secondary (College, Intermediate etc.)
- ☐ Undergraduate (Bachelor's degree etc.)
- ☐ Postgraduate (Master's degree etc.)
- ☐ Doctoral degree (PhD etc.)

If United Kingdom Is Selected

**Q39c.** What is the highest level of school you have completed or the highest degree you have received?

- ☐ Did not complete Secondary School
- ☐ Secondary (GCSE, 'O' levels etc)
- ☐ Post Secondary (College, 'A' levels, NVQ3 etc.)
- ☐ Undergraduate (Bachelor's degree etc.)
- ☐ Postgraduate (Master's degree etc.)
- ☐ Doctoral degree (PhD etc.)

**Q40.** (Employment) Which statement best describes your current employment status?

- ☐ Working (paid employee)
- ☐ Working (self-employed)
- ☐ Not working (looking for work)
- ☐ Not working (retired)
- ☐ Not working (disabled)
- ☐ Not working (student)
- ☐ Not working (stay at home)
- ☐ Not working (other) \_\_\_\_\_
- ☐ Prefer not to answer

**Q41.** (COMMENT\_EXP) If you have any other comments about your online shopping experience with your favourite retailers, please write in the space below

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*Some items appearing on the questionnaire are not used for this study.*

*Q7, Q7a, Q11, Q24 Social Media Usage*

*Q14, Q15, Q29, Q30 Perceived Value*

*Q13, Q28 Website Trust*



## **Appendix D : Print version of online questionnaire – Simplified Chinese**

### **Online Loyalty in China Survey**

#### **参与者同意书**

调查项目标题：针对互联网零售业的在线忠诚度而开展的多国家、多行业比较研究。

关于调查项目及参与者所涉事项的简短描述： 本研究旨在调查消费者网购时的在线忠诚度。本研究旨在调查四个国家（印度、中国、美国、英国）的消费者对其忠诚度的态度。调查侧重了解两方面内容：消费者为何成为在线零售商的忠实客户，哪些因素激励消费者再次光顾其钟爱的零售商。因为您有过网购体验，所以我们邀请您参加本在线调查，本调查希望更好地了解您对网购的态度。本调查计划在上述国家各招募250名参与者。调查由罗汉普顿大学博士研究生Sree Beg执行，所收集的数据将仅用于学术目的。请在线完成下列问卷，需要约20分钟即可完成。

调查员联系详情：

Sree Beg Roehampton Business School Queens Building 80 Roehampton Lane SW15 5SL  
begs@roehampton.ac.uk +44 (0)20 8392 3232

请注意：如果您对您的参与有任何方面的问题或其他咨询，请联系调查员（Sree Beg），您也可以联系教导主任（Mohammed Rafiq教授）。但是，如果您希望联系独立第三方，请联系系主任（Sharon Mavin教授）。

#### **教导主任**

Mohammed Rafiq教授  
Roehampton Business School  
Queens Building  
80 Roehampton Lane  
SW15 5SL  
Mohammed.rafiq@roehampton.ac.uk  
+44 (0)208 392 3232

#### **系主任**

Sharon Mavin教授  
Roehampton Business School  
Queens Building  
80 Roehampton Lane  
SW15 5SL  
Sharon.mavin@roehampton.ac.uk  
+44 (0)208 392 3232

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**Qualtrics与Lucid Federated Sample** 本研究在Qualtrics与Lucid Federated Sample的协助之下开展。因为您是一名已选择参加此次调查的小组成员，所以我们诚邀您参加调查。如果您对您的小组成员身份有任何疑问，请直接联系Lucid Federated Sample或Qualtrics

**同意声明：** 我同意参加本调查，并且知晓我可以随时退出调查而无需给出任何理由，但是即使我退出，相关机构仍可能会以聚合形式使用我的数据。我理解我提供的信息将由调查员严格保密，且我的身份在任何调查结果出版物中均将受到保护。数据将根据1998年《数据保护法案》和大学的《数据保护政策》进行收集和处理。点击“**同意**”按钮即表示我确认：

- 我已年满18周岁

- 已阅读上述信息

- 我自愿参加调查

☐ 我同意

☐ 我希望退出

Country 中国是否是您的主要居住国？

- ☐ 是
- ☐ 否

**Q1. SHOP** 您以前是否网购过？

- ☐ 是
- ☐ 否

**Q2. PURCHASE\_CE** 去年您是否多次购买过衣服和电子产品（参见下列示例）？

消费电子产品：视听和摄影器材（电视、音响、摄影器材、数码相机、投影机等）。计算与通信产品（台式电脑、笔记本电脑、平板电脑、智能手表、手机、电话机等）。个人护理用品（电动剃须刀、健身追踪器、吹风机、直发器等）。

- ☐ 是
- ☐ 否

**Q3. EXPERIENCE** 您网购多久了？

- ☐ 不到6个月
- ☐ 6个月到1年
- ☐ 1到3年
- ☐ 超过3年

**Q4. ELEC\_CAT** 请选择您之前购买过的电子产品类别。（您可以选择多项）

- ☐ 视听和摄影器材（电视、音响、摄影器材、数码相机、投影机等）。
- ☐ 计算与通信产品（台式电脑、笔记本电脑、平板电脑、手机、电话机、智能手表等）。
- ☐ 个人护理用品（电动剃须刀、健身追踪器、吹风机、直发器等）。

**Q5. FREQ\_PURCHASE** 您上个月共进行了几次网购？

- ☐ 无
- ☐ 1到2次
- ☐ 3到4次
- ☐ 5次或更多

**Q6. DEVICE** 您更加喜欢使用什么设备进行网购？

- ☐ 台式电脑
- ☐ 笔记本电脑
- ☐ 手机
- ☐ 平板电脑
- ☐ 其他

**Q6a. DEVICE\_OTHER** 如果是其他，请在此处写明

**Q7. SOCIAL1** 您是否使用社交媒体？

- ☐ 是，一直使用（例如至少每天一次）
- ☐ 是，大量使用（例如每周数次）
- ☐ 是，有时使用（例如每月数次）
- ☐ 不太使用（例如偶尔）
- ☐ 从不使用

**Q7a. SOCIAL2** 您最常用什么社交媒体？如果您选择了“其他”，请在提供的空白内写明社交网站。

- ☐ 百度贴吧
- ☐ 开心网
- ☐ 人人网
- ☐ 51.com
- ☐ 豆瓣
- ☐ LinkedIn
- ☐ 新浪微博
- ☐ QQ
- ☐ Facebook
- ☐ 朋友网
- ☐ 腾讯微博
- ☐ QQ空间
- ☐ Google+
- ☐ 微信
- ☐ Twitter
- ☐ 其他 \_\_\_\_\_

**Q8. LOY1\_CSite** 请写出您钟爱的服装网店或您经常在其上面买衣服的网站。

**Q9. LOY1\_C** 请参考这家服装网店，回答下列问题。 **您会有多大可能.....**

	完全不 可能	2	3	4	5	6	极其可 能
将其视为买衣服的首选？ (LOY1_C_1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
鼓励亲朋好友从那里买衣服？ (LOY1_C_2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
将其推荐给向您征求建议的人？ (LOY1_C_3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
与其他人分享在这家网店的积极体验？ (LOY1_C_4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
未来从那里购买更多衣服？ (LOY1_C_5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q10. EPRI\_C** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
这家服装网店努力提高回头客的忠诚度。 (EPRI_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
这家服装网店努力改善与回头客的关系。 (EPRI_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
这家服装网店真心关注留住回头客。 (EPRI_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q10d. EPRI\_C4** 如有的话，您珍视这家服装网店采取的哪些措施？

**Q11. SOCIALUSE\_CLOTHES** 想一下这家服装网店，您一般使用社交媒体完成与这家网店相关的哪些事情？

- ☐ 观看品牌相关视频
- ☐ 玩该品牌的在线视频游戏
- ☐ 评论品牌相关博客、视频、音频、图片等
- ☐ 收听品牌相关视频
- ☐ 下载品牌的小工具
- ☐ 发布品牌相关博客
- ☐ 查看品牌相关图片
- ☐ 发送品牌虚拟礼品/卡片
- ☐ 关注品牌在线论坛的帖子
- ☐ 评价产品和/或品牌
- ☐ 上传品牌相关视频、音频、图片或图像
- ☐ 阅读社交网站上有关此品牌的评论
- ☐ 加入社交网站上的品牌资料小组
- ☐ 撰写品牌相关文章
- ☐ 阅读产品评价
- ☐ 参加品牌对话（例如论坛）
- ☐ 撰写产品评价
- ☐ 以上皆无
- ☐ 其他 \_\_\_\_\_



**Q12. EAC\_C** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
我在感情上依恋该服装网店。 (EAC_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我在该服装网店能感到强烈的认同感。 (EAC_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
该服装网店对我个人有着非同寻常的意义。 (EAC_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q13. ETRUST\_C** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
这是一家值得信赖的服装网店。 (ETRUST_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
这家网店的表现符合我的期望。 (ETRUST_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
这家网店信得过，我可以在上面成功完成交易。 (ETRUST_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我相信这家网店能够拥有卓越表现。 (ETRUST_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q14. PV\_C1** 在这家网店购买的产品：

- ☐ 性价比不高
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 非常物有所值

**Q15.Value\_Clothes** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
在这家网店购买的产品很合算。 (PV_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
一分钱，一分货。 (PV_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
在这家网店购买的产品物有所值。 (PV_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q16.** ERS\_C1 对您与该服装网店之间的关系，您的满意度如何？

- ☐ 非常不满意
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 非常满意

**Q16a.** ERS\_C2 对您与该服装网店之间的关系，您的喜欢程度如何？

- ☐ 非常不喜欢
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 非常喜欢

ERS\_C3 对您与该服装网店之间的关系，您的评价如何？

- ☐ 不佳
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 很好

**Q17. EWOM\_Clothing** 请阅读下列关于该服装网店的陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
我与其他人分享在这家网店的积极体验。 (EWOM_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我向所有寻求我建议的人都推荐这家网店。 (EWOM_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我不鼓励朋友在这家网店购物。 (EWOM_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我不愿把熟人推荐到这家网店。 (EWOM_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q18. INVOLVE\_C** 接下来的三个问题与您对服装的态度有关。请选择最适合您的陈述。

	强烈反对	2	3	4	5	6	强烈同意
一般而言，我觉得买的衣服很重要。 (INVOLVE_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
一般而言，我对自己购买的服装感兴趣。 (INVOLVE_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
一般而言，我购买的服装对自己意味很多。 (INVOLVE_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q19. ETRUST\_GEF\_CLOTH** 请参考您的服装网店，回答下列问题：

	强烈反对	2	3	4	5	6	强烈同意
即使没有监督，我相信这家服装网店也会做正确的事。 (ETRUST_GEF_C1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我信任这家服装网店。 (ETRUST_GEF_C2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我相信这家服装网店值得信赖。 (ETRUST_GEF_C3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我十分确定可以期待从这家服装网店获得什么。 (ETRUST_GEF_C4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q20. Cosmo** 接下来的几个问题与您的个人观点有关，可以帮助我们识别您是哪一类型的购物者。

COSMO\_OM 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
旅行时，我会有意识地接触当地文化和传统。 (COSMO_OM1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我喜欢有机会见到来自不同国家的人们。 (COSMO_OM2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我喜欢与来自不同文化的人接触。 (COSMO_OM3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我对其他国家有浓厚的兴趣。 (COSMO_OM4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**Q21. COSMO\_DA** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
能够买到来自许多不同国家的产品，这一点对我而言很重要。 (COSMO_AD1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
如能在国内买到外国产品，就会享有更多优质选择。 (COSMO_AD2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我喜欢从来自许多不同国家的产品中进行选择。 (COSMO_AD3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
随着时间推移，一直购买相同的本国产品会变得越来越无聊。 (COSMO_AD4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q22. COSMO\_Culture** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
我喜欢看不同文化的电影。 (COSMO_CULTURE1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我喜欢听其他文化的音乐。 (COSMO_CULTURE2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我喜欢尝试来自其他国家的原创菜式。 (COSMO_CULTURE3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我喜欢尝试世界其他地方的人们所使用的东西。 (COSMO_CULTURE4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q23. LOY\_Esite** 下一组问题与之前的问题类似，但是与您网购电子产品的体验有关。请写出您钟爱的电子产品网店或您经常在其上面买电子产品的网站。

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**Q24. SOCIALUSE\_ELECTRIC** 想一下这家电子产品网店，您一般使用社交媒体完成与这家网店相关的哪些事情？

- ☐ 观看品牌相关视频 (1)
- ☐ 玩该品牌的在线视频游戏 (2)
- ☐ 评论品牌相关博客、视频、音频、图片等 (3)
- ☐ 收听品牌相关视频 (4)
- ☐ 下载品牌的小工具 (5)
- ☐ 发布品牌相关博客 (6)
- ☐ 查看品牌相关图片 (7)
- ☐ 发送品牌虚拟礼品/卡片 (8)
- ☐ 关注品牌在线论坛的帖子 (9)
- ☐ 评价产品和/或品牌 (10)
- ☐ 上传品牌相关视频、音频、图片或图像 (11)
- ☐ 阅读社交网站上有关此品牌的评论 (12)
- ☐ 加入社交网站上的品牌资料小组 (13)
- ☐ 撰写品牌相关文章 (14)
- ☐ 阅读产品评价 (15)
- ☐ 参加品牌对话（例如论坛） (16)
- ☐ 撰写产品评价 (17)
- ☐ 以上皆无 (18)
- ☐ 其他 (19) \_\_\_\_\_

**Q25.LOY1\_ELEC** 请参考这家电子产品网店，回答下列问题。 您会有多大可能

.....

	完全不 可能	2	3	4	5	6	极其可能
将其视为 买电子产 品的首选 ？ (LOY1_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
鼓励亲朋 好友从那 里买电子 产品？ (LOY1_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
将其推荐 给向您征 求建议的 人？ (LOY1_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
与其他人 分享在这 家网店的 积极体验 ？ (LOY1_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
未来从那 里购买更 多电子产 品？ (LOY1_E5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q26. EPRI\_E** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
这家电子产品网店努力提高回头客的忠诚度。 (EPRI_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
这家电子产品网店努力改善与回头客的关系。 (EPRI_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
这家电子产品网店真心关注留住回头客。 (EPRI_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q26d. EPRI\_E4** 如有的话，您珍视这家电子产品网店采取的哪些措施？

**Q27. EAC\_ELEC** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
我在感情上依恋于该电子产品网店。 (EAC_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我在该电子产品网店能感到强烈的认同感。 (EAC_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
该电子产品网店对我个人有着非同寻常的意义。 (EAC_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q28. ETRUST\_ELEC** 请阅读下列陈述，然后选择一项。

	强烈反对	2	3	4	5	6	强烈同意
<p>这是一家值得信赖的电子产品网店。 (ETRUST_E1)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>这家网店的表现符合我的期望。 (ETRUST_E2)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>这家网店信得过，我可以在上面成功完成交易。 (ETRUST_E3)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>我相信这家网店能够拥有卓越表现。 (ETRUST_E4)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q29. PV\_E1** 在这家网店购买的产品：

- ☐ 性价比极低
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 非常物有所值7

**Q30. Value\_electrical** 请回答下列问题。

	强烈反对	2	3	4	5	6	强烈同意
在这家网店购买的产品很合算。 (PV_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
一分钱，一分货。 (PV_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
在这家网店购买的产品物有所值。 (PV_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**Q31.** ERS\_E1 对您与该电子产品网店之间的关系，您的满意度如何？

- ☐ 非常不满意
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 非常满意

**Q31a.ERS\_E2** 对您与该电子产品网店之间的关系，您的喜欢程度如何？

- ☐ 非常不喜欢
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 非常喜欢

**Q31b.ERS\_E3** 对您与该电子产品网店之间的关系，您的评价如何？

- ☐ 不利
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 有利

**Q32. EWOM\_Electric** 请回答下列有关您所用电子产品网店的问题。

	强烈反对	2	3	4	5	6	强烈同意
我与其他人分享在这家网店的积极体验。 (EWOM_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我向所有寻求我建议的人都推荐这家网店。 (EWOM_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我不鼓励朋友在这家网店购物。 (EWOM_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我不愿把熟人推荐到这家网店。 (EWOM_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q33. INVOLVE\_ELECTRIC** 接下来的三个问题与您对电子产品的态度有关。请选择最适合您的陈述。

	强烈反对	2	3	4	5	6	强烈同意
一般而言，我觉得买的电子产品很重要。 (INVOLVE_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
一般而言，我对自己购买的电子产品感兴趣。 (INVOLVE_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
一般而言，我购买的电子产品对我有着非同寻常的意义。 (INVOLVE_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q34.** ETRUST\_GEF\_ELEC 请参考您的电子产品网店，回答下列问题：

	强烈反对	2	3	4	5	6	强烈同意
即使没有监督，我相信这家电子产品网店也会做正确的事。 (ETRUST_GEF_E1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我信任这家电子产品网店。 (ETRUST_GEF_E2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我相信这家电子产品网店值得信赖。 (ETRUST_GEF_E3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
我十分确定可以期待从这家电子网店获得什么。 (ETRUST_GEF_E4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SDB 本节到此结束。针对下一组问题，请选择对或错。

**Q35.** SDB1 有时候，我要是不能如自己所愿，就会感到不满。

- ☐ 对 (1)
- ☐ 错 (2)

**Q35a. SDB2** 偶然情况下，我曾因为觉得自己不行而放弃做一些事情。

- ☐ 对 (1)
- ☐ 错 (2)

**Q35b. SDB3** 有时候我会觉得自己喜欢与权威人士对抗，即使我知道这样做并不会让我得到什么，却仍会这么做。

- ☐ 对 (1)
- ☐ 错 (2)

**Q35c. SDB4** 无论跟谁说话，我都是个很好的倾听者。

- ☐ 对 (1)
- ☐ 错 (2)

**Q35d. SDB5** 我记得自己曾经“装病”来逃脱一些事情。

- ☐ 对 (1)
- ☐ 错 (2)

**Q35e. SDB6** 有时候我会利用别人。

- ☐ 对 (1)
- ☐ 错 (2)

**Q35f. SDB7 如果我犯错，我一直都能甘愿承认错误。**

- ☐ 对 (1)
- ☐ 错 (2)

**Q35g. SDB8 有时候我会报复，而不是既往不咎。**

- ☐ 对 (1)
- ☐ 错 (2)

**Q35h. SDB9 即使面对自己不喜欢的人，我也始终很有礼貌。**

- ☐ 对 (1)
- ☐ 错 (2)

**Q35i. SDB10 别人表达跟我极为相左的意见时，我也从不会心烦。**

- ☐ 对 (1)
- ☐ 错 (2)

**Q35j. SDB11 有时候我会相当嫉妒别人的好运。**

- ☐ 对 (1)
- ☐ 错 (2)

**Q35k. SDB12** 有时候，我会迁怒于向我寻求帮助的人。

- ☐ 对 (1)
- ☐ 错 (2)

**Q35l. SDB13** 我从未故意说过伤害别人感情的话。

- ☐ 对 (1)
- ☐ 错 (2)

DEM 本节到此结束。接下来是关于您个人情况的几个问题。

**Q36. Gender** 您的性别是什么？

- ☐ 男 (1)
- ☐ 女 (2)

**Q37. Age** 您属于哪一年龄段？

- ☐ 18到24岁 (1)
- ☐ 25到34岁 (2)
- ☐ 35到44岁 (3)
- ☐ 45到54岁 (4)
- ☐ 55到64岁 (5)
- ☐ 65岁或以上 (6)



**Q38. Income** 您的家庭年均收入为多少（人民币元）？

- ☐ 0到60,000元 (1)
- ☐ 61,000到80,000元 (2)
- ☐ 81,000到106,000元 (3)
- ☐ 107,000到299,000元 (4)
- ☐ 300,000元以上 (5)

**Q39. Employment** 下列哪一项陈述最符合您目前的就业状况？

- ☐ 正在工作（工薪族） (1)
- ☐ 正在工作（个体户） (2)
- ☐ 没有工作（正在找工作） (3)
- ☐ 没有工作（已退休） (4)
- ☐ 没有工作（残疾人） (5)
- ☐ 没有工作（学生） (6)
- ☐ 没有工作（待在家中） (7)
- ☐ 没有工作（其他） (8) \_\_\_\_\_

**Q40. Education** 您的最高教育水平或获得的最高学历是什么？

- ☐ 未完成初中教育 (1)
- ☐ 初中 (2)
- ☐ 高中或职业学校（大专等） (3)
- ☐ 本科（学士学位等） (4)
- ☐ 研究生（硕士学位等） (5)
- ☐ 博士（博士学位等） (6)

**Q41. COMMENT\_EXP** 对于在钟爱的零售商那里所获得的网购体验，如果您有任何其他意见，请在下方空白内写明。

## Appendix E : Multivariate Outliers (Clothing Dataset)

Observation Number	Mahalanobis D <sup>2</sup>	Significance	Observation Number	Mahalanobis D <sup>2</sup>	Significance
491	201.995	0.000	370	79.818	0.000
261	178.967	0.000	903	79.699	0.000
285	156.840	0.000	617	78.753	0.000
485	144.315	0.000	495	77.991	0.000
501	142.873	0.000	749	77.885	0.000
432	140.864	0.000	153	77.266	0.000
414	129.389	0.000	856	76.188	0.000
302	115.737	0.000	663	75.672	0.000
523	114.222	0.000	919	75.444	0.000
157	110.357	0.000	768	75.363	0.000
991	109.940	0.000	152	75.263	0.000
150	109.626	0.000	305	75.000	0.000
420	105.529	0.000	403	74.609	0.000
2	104.697	0.000	987	74.508	0.000
469	104.030	0.000	853	74.065	0.000
257	101.251	0.000	721	73.461	0.000
805	100.473	0.000	877	73.245	0.000
342	100.292	0.000	883	73.188	0.000
500	96.361	0.000	381	72.684	0.000
179	95.930	0.000	251	72.616	0.000
488	95.563	0.000	937	72.055	0.000
412	94.770	0.000	377	72.034	0.000
687	94.416	0.000	658	71.808	0.000
429	94.259	0.000	398	71.435	0.000
542	93.410	0.000	419	71.264	0.000
534	93.263	0.000	365	70.879	0.000
615	92.925	0.000	354	70.752	0.000
15	92.644	0.000	168	70.516	0.000
837	92.526	0.000	640	70.419	0.000
480	90.924	0.000	679	69.858	0.000
204	90.879	0.000	601	69.687	0.000
383	90.470	0.000	530	68.015	0.000
514	89.353	0.000	39	67.893	0.000
368	88.610	0.000	225	67.854	0.000
353	87.997	0.000	232	67.746	0.000
914	86.346	0.000	968	67.368	0.000
993	84.852	0.000	720	67.363	0.000
167	84.185	0.000	664	67.049	0.000
486	84.032	0.000	325	66.955	0.000
364	79.951	0.000	490	65.680	0.001
391	79.898	0.000	801	65.578	0.001

## Appendix F : Multivariate Outliers (Electrical Dataset)

Observation Number	Mahalanobis D <sup>2</sup>	Significance
501	184.177	0.000
261	156.880	0.000
150	154.304	0.000
157	149.774	0.000
687	148.194	0.000
469	144.003	0.000
480	134.239	0.000
403	132.829	0.000
491	132.789	0.000
383	126.084	0.000
500	124.829	0.000
167	124.438	0.000
377	123.280	0.000
432	121.836	0.000
414	118.528	0.000
727	117.435	0.000
419	113.077	0.000
285	111.115	0.000
15	110.012	0.000
485	105.361	0.000
994	104.738	0.000
924	104.231	0.000
39	101.850	0.000
192	101.667	0.000
650	100.292	0.000
234	96.640	0.000
429	96.551	0.000
627	94.663	0.000
829	94.572	0.000
306	94.454	0.000
737	93.398	0.000
749	93.129	0.000
204	92.860	0.000
43	90.857	0.000
768	90.148	0.000
222	88.072	0.000
455	87.838	0.000
302	86.558	0.000
148	83.018	0.000
225	80.773	0.000
354	80.746	0.000
483	80.068	0.000
991	79.797	0.000

Observation Number	Mahalanobis D <sup>2</sup>	Significance
3	79.698	0.000
490	79.516	0.000
827	78.783	0.000
937	78.377	0.000
475	76.307	0.000
617	75.560	0.000
408	75.003	0.000
381	74.911	0.000
615	74.713	0.000
903	73.988	0.000
604	73.957	0.000
365	73.215	0.000
443	72.462	0.000
578	71.991	0.000
913	71.753	0.000
626	71.629	0.000
449	71.411	0.000
564	71.226	0.000
782	70.704	0.000
1009	70.593	0.000
696	70.561	0.000
897	70.329	0.000
305	70.110	0.000
562	69.939	0.000
176	69.766	0.000
702	69.581	0.000
191	69.558	0.000
868	69.321	0.000
607	69.263	0.000
287	68.592	0.000
883	68.517	0.000
486	68.495	0.000
174	68.230	0.000
637	68.199	0.000
969	68.149	0.000
2	67.623	0.000
664	67.623	0.000
709	67.321	0.000
762	67.194	0.000
386	66.769	0.000
861	66.681	0.000
805	66.084	0.001
325	66.040	0.001

## Appendix G: Multivariate Normality (Clothing Dataset) – Mardia’s Test

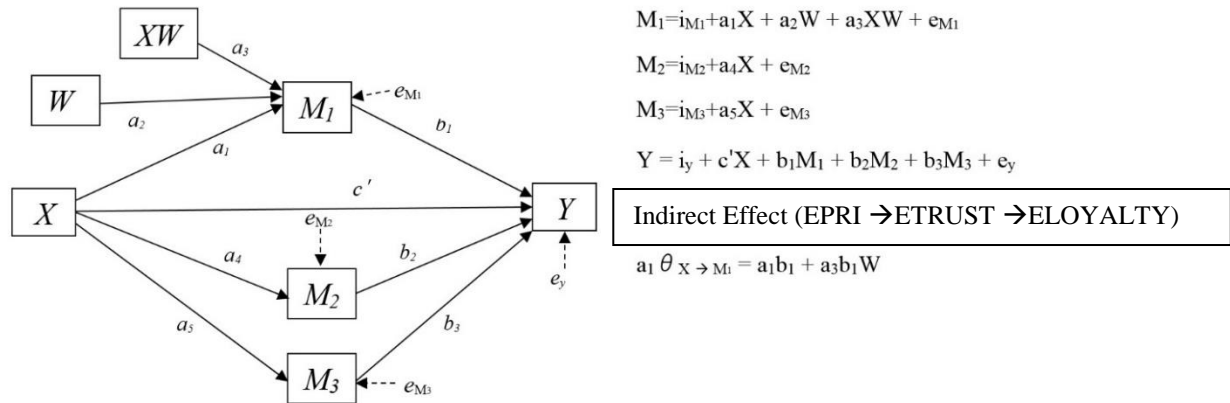
Variable	min	max	skew <sub>a</sub>	c.r.	kurtosis <sub>b</sub>	c.r.
COSMO_OM1	1	7	-0.868	-11.259	0.173	1.12
COSMO_OM2	1	7	-1.052	-13.654	0.677	4.389
COSMO_OM3	1	7	-1.021	-13.245	0.575	3.727
COSMO_OM4	1	7	-0.951	-12.341	0.318	2.061
COSMO_AD1	1	7	-0.679	-8.815	-0.062	-0.399
COSMO_AD2	1	7	-0.792	-10.278	0.248	1.61
COSMO_AD3	1	7	-0.826	-10.721	0.221	1.434
COSMO_AD4	1	7	-0.186	-2.417	-0.966	-6.264
COSMO_CULTURE1	1	7	-0.613	-7.959	-0.72	-4.67
COSMO_CULTURE2	1	7	-0.611	-7.933	-0.619	-4.014
COSMO_CULTURE3	1	7	-1.155	-14.99	0.853	5.535
COSMO_CULTURE4	1	7	-0.931	-12.079	0.378	2.449
INVOLVE_C3	1	7	-0.706	-9.162	-0.266	-1.728
INVOLVE_C2	1	7	-1.046	-13.568	0.693	4.497
INVOLVE_C1	1	7	-0.832	-10.8	0.075	0.485
LOY1_C1	1	7	-1.139	-14.773	0.885	5.742
LOY1_C2	1	7	-0.795	-10.319	0.08	0.518
LOY1_C3	1	7	-1.058	-13.723	0.851	5.518
LOY1_C4	1	7	-1.092	-14.167	1.017	6.595
LOY1_C5	1	7	-1.391	-18.042	1.845	11.972
EAC_C1	1	7	-0.198	-2.562	-0.996	-6.463
EAC_C2	1	7	-0.458	-5.946	-0.676	-4.386
EAC_C3	1	7	-0.299	-3.884	-0.939	-6.094
ERS_C1	1	7	-1.046	-13.57	1.19	7.722
ERS_C2	2	7	-0.919	-11.923	0.596	3.864
ERS_C3	2	7	-0.914	-11.863	0.55	3.567
ETRUST_GEF_C1	1	7	-0.958	-12.428	0.874	5.672
ETRUST_GEF_C2	1	7	-1.012	-13.125	0.905	5.868
ETRUST_GEF_C3	1	7	-1.189	-15.428	1.51	9.798
ETRUST_GEF_C4	1	7	-1.249	-16.211	1.889	12.257
EPRI_C1	1	7	-0.773	-10.023	0.011	0.071
EPRI_C2	1	7	-0.827	-10.731	0.158	1.026
EPRI_C3	1	7	-0.804	-10.436	0.054	0.35
<b>Multivariate <sup>c</sup></b>					<b>467.129</b>	<b>154.441</b>
	<sup>a</sup> skewness: high (<-1 and >1), low (-1 to -0.5) and (0.5 to 1), none (-0.5 to 0.5) <sup>b</sup> kurtosis: greater than 7, non normal (West et al 1995) <sup>c</sup> Mardia's co-efficient, greater than 5, non normal (Mardia 1970) (c.r.) critical ratio - z-value, parameter estimate divided by its standard error					

## Appendix H : Multivariate Normality (Electrical Dataset) – Mardia’s Test

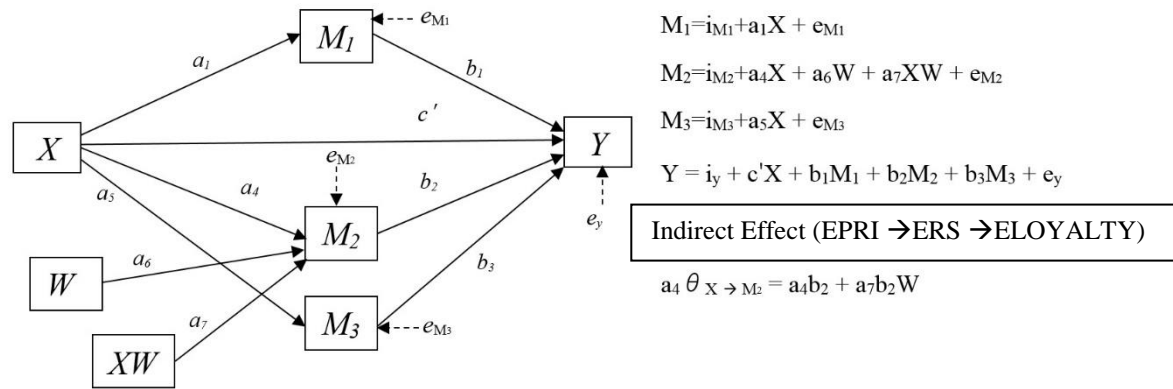
Variable	min	max	skew <sup>a</sup>	c.r.	kurtosis <sub>b</sub>	c.r.
COSMO_OM1	1	7	-0.868	-11.259	0.173	1.12
COSMO_OM2	1	7	-1.052	-13.654	0.677	4.389
COSMO_OM3	1	7	-1.021	-13.245	0.575	3.727
COSMO_OM4	1	7	-0.951	-12.341	0.318	2.061
COSMO_AD1	1	7	-0.679	-8.815	-0.062	-0.399
COSMO_AD2	1	7	-0.792	-10.278	0.248	1.61
COSMO_AD3	1	7	-0.826	-10.721	0.221	1.434
COSMO_AD4	1	7	-0.186	-2.417	-0.966	-6.264
COSMO_CULTURE1	1	7	-0.613	-7.959	-0.72	-4.67
COSMO_CULTURE2	1	7	-0.611	-7.933	-0.619	-4.014
COSMO_CULTURE3	1	7	-1.155	-14.99	0.853	5.535
COSMO_CULTURE4	1	7	-0.931	-12.079	0.378	2.449
INVOLVE_E3	1	7	-0.871	-11.298	0.204	1.324
INVOLVE_E2	1	7	-1.065	-13.817	0.959	6.224
INVOLVE_E1	1	7	-1.016	-13.183	0.731	4.739
LOY1_E1	1	7	-1.032	-13.393	0.973	6.313
LOY1_E2	1	7	-1.031	-13.38	0.941	6.106
LOY1_E3	2	7	-0.889	-11.53	0.395	2.564
LOY1_E4	1	7	-1.043	-13.53	1.057	6.856
LOY1_E5	1	7	-1.313	-17.033	1.769	11.473
EAC_E1	1	7	-0.49	-6.351	-0.756	-4.902
EAC_E2	1	7	-0.574	-7.453	-0.585	-3.793
EAC_E3	1	7	-0.479	-6.212	-0.724	-4.695
ERS_E1	1	7	-1.261	-16.361	1.969	12.773
ERS_E2	1	7	-1.106	-14.352	1.294	8.398
ERS_E3	2	7	-1.018	-13.204	0.908	5.892
ETRUST_E1	1	7	-1.245	-16.155	1.694	10.992
ETRUST_E2	1	7	-1.227	-15.923	1.804	11.706
ETRUST_E3	2	7	-1.282	-16.638	1.516	9.832
ETRUST_E4	1	7	-1.279	-16.599	1.579	10.241
EPRI_E1	1	7	-0.905	-11.738	0.358	2.324
EPRI_E2	1	7	-0.894	-11.602	0.468	3.039
EPRI_E3	1	7	-0.932	-12.093	0.463	3.004
<b>Multivariate<sup>c</sup></b>					<b>519.775</b>	<b>171.846</b>
<sup>a</sup> skewness: high (<-1 and >1), low (-1 to -0.5) and (0.5 to 1), none (-0.5 to 0.5)						
<sup>b</sup> kurtosis: greater than 7, non normal (West et al 1995)						
<sup>c</sup> Mardia's co-efficient, greater than 5, non normal (Mardia 1970)						
(c.r) critical ratio - z-value, parameter estimate divided by its standard error						

## Appendix I: PROCESS Statistical Model with regression equations

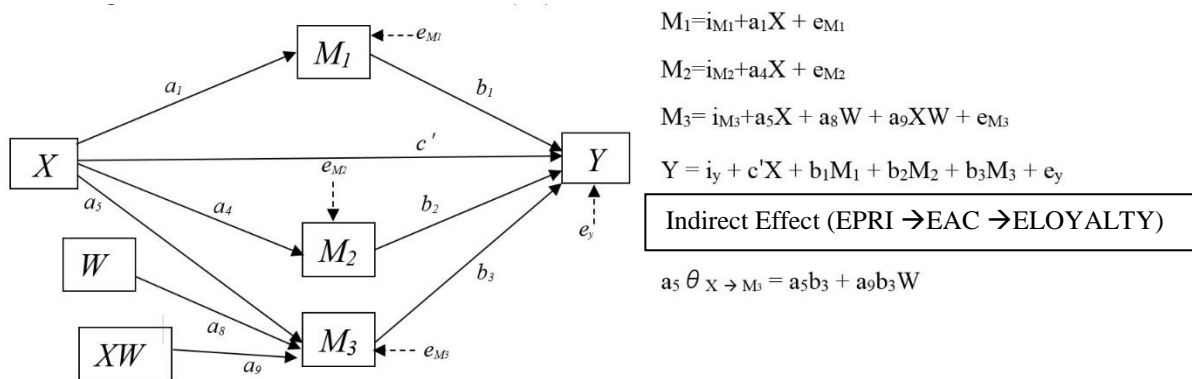
**Figure 1 Statistical Model of Mediator ETRUST (M1)**



**Figure 2 Statistical Model of Mediator ERS (M2)**



**Figure 3 Statistical Model of Mediator EAC (M3)**



**X** = EPRI      **Y** = ELOYALTY      **M<sub>1</sub>** = ETRUST    **M<sub>2</sub>** = ERS    **M<sub>3</sub>** = EAC  
**W** = Consumer cosmopolitanism, Product category involvement, National culture (MODERATORS)

## Appendix J: PROCESS 3.0 Code for Individual Model (X, Y, 3 multiple mediators and 1moderator)

Sectors	
	<div>Clothing</div> <div>Electrical</div>
Moderators (W)	<div> <b>Cosmopolitan</b>  y=TLOYC  /x=TEPRI_C  /m=TTrust_C TERS_C TEAC_C  /w=TCosmo2  /bmatrix=1,1,1,1,0,1,1,1,1,1  /wmatrix=1,1,0,1,0,0,1,0,0,0  /decimals=F10.4  /boot=5000/conf=95/center=1  /plot=1/jn=1 </div> <div> <b>Involve</b>  y=TLOYC  /x=TEPRI_C  /m=TTrust_C TERS_CTEAC_C  /w=TINV2_C  /bmatrix=1,1,1,1,0,1,1,1,1,1  /wmatrix=1,1,0,1,0,0,1,0,0,0  /decimals=F10.4  /boot=5000/conf=95/center=1  /plot=1/jn=1 </div> <div> <b>Culture</b>  y=TLOYC  /x=TEPRI_C  /m=TTrust_C TERS_CTEAC_C  /w=Culture  /bmatrix=1,1,1,1,0,1,1,1,1,1  /wmatrix=1,1,0,1,0,0,1,0,0,0  /decimals=F10.4  /boot=5000/conf=95/center=1  /plot=1/jn=1 </div> <div> <b>Electrical</b>  y=TLOYE  /x=TEPRI_E  /m=TTrust_E TERS_E TEAC_E  /w=TCosmo2  /bmatrix=1,1,1,1,0,1,1,1,1,1  /wmatrix=1,1,0,1,0,0,1,0,0,0  /decimals=F10.4  /boot=5000/conf=95/center=1  /plot=1/jn=1 </div> <div> <b>Electrical</b>  y=TLOYE  /x=TEPRI_E  /m=TTrust_E TERS_E TEAC_E  /w=TINV2_E  /bmatrix=1,1,1,1,0,1,1,1,1,1  /wmatrix=1,1,0,1,0,0,1,0,0,0  /decimals=F10.4  /boot=5000/conf=95/center=1  /plot=1/jn=1 </div> <div> <b>Electrical</b>  y=TLOYE  /x=TEPRI_E  /m=TTrust_E TERS_E TEAC_E  /w=Culture  /bmatrix=1,1,1,1,0,1,1,1,1,1  /wmatrix=1,1,0,1,0,0,1,0,0,0  /decimals=F10.4  /boot=5000/conf=95/center=1  /plot=1/jn=1 </div>
	<div> <b>Bmatrix</b>  <div> EPRI Etrust ERS EAC </div> <div> Etrust 1 </div> <div> ERS 1 1 </div> <div> EAC 1 0 1 </div> <div> Eloyalty 1 1 1 1 </div> </div> <div> <b>Wmatrix</b>  <div> EPRI Etrust ERS EAC </div> <div> Etrust 1 </div> <div> ERS 1 0 </div> <div> EAC 1 0 0 </div> <div> Eloyalty 1 0 0 0 </div> </div>
	<p>y- dependent variable (Eloyalty), x-independent variable (EPRI), m-mediators (Etrust, ERS, EAC)</p> <p>w- moderators (cosmopolitan, involvement culture)</p> <p>Bmatrix - model definition matrices, specifies freely estimated (1) and zero fixed (0) paths in mediation process</p> <p>Wmatrix - model definition matrices, specifies freely estimated (1) and zero fixed (0) paths in moderation process of mediated path</p> <p>Representation of conditional process model with matrices</p>

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